BEN LINE AND FAR EASTERN TRADE

See Page 3

MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

LIGHTING FOR JERSEY AIRPORT

See Page 5

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Robert Stephenson

ONE hundred years ago, on October 12, 1859, Robert Stephenson died. It is a sad coincidence that the firm which bore his name from its foundation in 1823 is now to cease to build locomotives. Born at Willington Quay, near Newcastle, in 1803, Robert was the only son of George Stephenson, who put the steam railway on the map. He received the elements of education at a village school, but later, when has father's circumstances improved, went to Bruce's Academy at Newcastle, and remained there for four years. In 1819, he was apprenticed to Nicholas Wood, then managing engineer and viewer of Killingworth Colliery. Two years later Robert assisted his father in a survey of the Stockton and Darlington Railway and then joined William James on a Liverpool and Manchester survey. In 1822 he went for six months to Edinburgh University, studying science. In June, 1823, when the locomotive building works at Newcastle was established by his father, with Edward Pease and Michael Longridge, Robert Stephenson, then 20, was called upon to manage the works and the partnership took his name. From 1824 to 1827 he was sent to South America as manager of gold and silver mines. He returned to this country after an urgent summons from the locomotive works. Two years later the *Rocket* proved the superiority of steam traction to the Liverpool and Manchester board. When, in 1833, Parliament passed the Act for construction of the London and Birmingham Railway, Robert Stephenson was appointed civil engineer. The undertaking was noteworthy for its magnitude and on account of the constructional difficulties encountered. Later railway work in France set the left-hand running in English fashion that still obtains in that country. Robert Stephenson will be remembered by his bridges. The Britannia tubular bridge over the Menai Straits was an original scheme carried out in cast iron; the Conway crossing had provided means of proving the principles. The High Level bridge over the Tyne at Newcastle and the viaduct of the Royal Border Bridge at Berwick on Tweed were more orthodox but are still noble structures, as was the Victoria Bridge, over the St. Lawrence at Montreal. He was M.P. for Whitby, and represented that town from 1847 until the time of his death, within a few days of his fifty-sixth birthday. Three years earlier he had been elected president of the Institution of Civil Engineers (which had snubbed his father) and delivered his famous address on railways. He had been elected a Fellow of the Royal Society in 1849. By national desire he was buried in Westminster Abbey.

Fortieth Anniversary of K.L.M.

THE fortieth anniversary of the founding of K.L.M. (Royal Dutch Airlines) on October 7 has been marked by numerous functions in the Netherlands and by the issue of two special 12 and 30 cents commemorative stamps. The two principal events on the actual birthday were the unveiling, by his grandson, of a memorial to Dr. Albert Plesman, founder of K.L.M. and its president until his death in 1953. In the evening there was an anniversary concert in the Kurzaal at Scheveningen by the Residency Orchestra of The Hague at which H.M. Queen Juliana of the Netherlands proposed to be present. On Thursday 10 predictions of the state of civil aviation in 40 years' time were to be sealed in the base of Utrecht Cathedral tower—it is intended to open them in A.D. 2000. Commencing with a DH16 chartered from Aircraft Transport and Travel, Limited, the Dutch airline today operates 95 aircraft and it was appropriate that during the unveiling ceremony on Wednesday a Fokker FVIIA and a Lockheed Electra should have flown past in salute to typify prewar and postwar aviation. Serving 105 cities and towns in 74 countries, the airline can look back on a remarkable development and more particularly when it is remembered that the 1939-45 war nearly brought the whole organisation to nothing. The future can be even brighter.

CURRENT TOPICS

Electro-Diesel Locomotives Ordered

ORDERS have been placed by the British Transport Commission with British Railways workshops at Crewe, Doncaster and Swindon for a further 80 main-line diesel locomotives, of which delivery will begin in 1961. This brings to over 400 the number of main-line diesel locomotives to be built in railway workshops for the modernisation programme. These new orders are valued at £8¾ million. Of the locomotives six will be novel electro-diesel units; they will be built at Doncaster Works for the Southern Region. They will be able to run as electric locomotives on electrified lines or under their own diesel power elsewhere or during periods when current is not available. They will have a 600-h.p. diesel engine coupled to a generator, and will give greater flexibility of operation which may lead to a reduction in the total number of locomotives needed for partially electrified areas. The remaining 74 locomotives will have diesel engines of 2,700 h.p. with hydraulic transmissions, and are for the Western Region. Swindon Works will build 35 of them and 39 are to be constructed at Crewe. They will cover a further stage of the Western Region programme for the complete replacement of steam by diesel power for all rail services in the West of England and in the Bristol area, including all principal passenger and freight trains to and from London.

London to Birmingham by Train

DESPERATE situations call for drastic remedies and the hastening of the processes of high-tension overhead electrification on the densely occupied London Midland Region main line between Euston and Crewe has called for a thinning of the train service in order to give the engineers reasonable occupations. It is hoped that the alterations will enable a considerable acceleration of the pre-electrification works. In November and December alone 34 miles of reballasting, 17 miles of track lifting, 9 miles of drainage, and reconstruction of 44 bridges will be in hand; parapet-raising will be done on 36 other bridges. To help the good work the entire express service between Euston, Birmingham New Street and Wolverhampton High Level will be withdrawn from November 2. In compensation there will be an augmented Western Region service (with extras at peak demand times) from Paddington to Birmingham Snow Hill and Wolverhampton Low Level at (on Monday to Friday) 12.5 a.m., 7.5 a.m., 8.30 a.m., 9 a.m., and 9.10 a.m. hourly to 8.10 p.m., with a 6.23 p.m. extra. There will still be an intermediate L.M. service providing for Watford, Northampton, Rugby and Coventry traffic and there will be special diesel railcar connections out of expresses from Rugby to Coventry. A few London — Manchester services are being diverted, after October 24 in some cases, from Euston—London Road to run St. Pancras—Central; the London—Manchester sleepers will be attached to the 11.40 p.m. ex Euston. The Trent Valley line between Rugby and Stafford will be closed every Sunday for about two years and all trains will run on Sundays via Coventry, Stechford and Bescot, with 20 to 40 min. added to the running time. There will be additional running time for all L.M. trains on the Western Division to allow for permanent way restrictions, but the *Royal Scot* and *Midday Scot* will now be limited trains (all seats reservable in advance) and with lightened loads they will be accelerated. It is unfortunate that the Birmingham service changes coincide with the opening of the Midland motorway, but no doubt the result for the railway after 1964 justifies the present inconvenience.

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Between Grimsby and Immingham

NEW arrangements for provision of transport between Grimsby and Immingham began on September 28. The light railway opened by the former Great Central Railway in 1912 to serve its newly-opened docks at Immingham is now operated only in peak hours on the truncated route from Cleveland Bridge. A fleet of 10 cars is scheduled to work 14 journeys one way and 15 the other (with numerous duplications) Monday to Friday and 14 each way on Saturdays. The night service and all off-peak operation has been transferred to a through bus service, No. 45, operated by Lincolnshire Road Car and Grimsby—Cleethorpes Transport through either from Cleethorpes Market Place or Grimsby Old Market, each section running hourly most of the day, with five journeys in the small hours between midnight and 6 a.m. between Immingham Dock and Riby Square, Grimsby. Buses run limited stop in the Grimsby—Cleethorpes area. Buses also run special works journeys to the Laporte Titanium factory. For the first time the limited morning and evening train service between Cleethorpes and Immingham is shown publicly in a leaflet. The bus route is roundabout and the tram fare, formerly 1s. single and 1s. 6d. day return, has gone up to 1s. 3d. and 2s. 1d. respectively; the bus fare from Cleethorpes is 1s. 9d. single and 3s. 3d. for a three-month return, or from Old Market 1s. 6d. single and 2s. 6d. return. These increases are being made up to employees by some firms, but Humber Graving Dock, which heard of them only on September 25, had a strike of boilermakers as a result of the increase. Firms that refused to subsidise a continuance of the tram service under the old arrangements appear now to pay for it in the wage packet.

Flares for Accident Prevention

CONSIDERATION of the adoption of warning flares on British Railways is recommended by Colonel W. P. Reed, inspecting officer of railways, in his report (H.M.S.O., 3s. 0d.) on two related accidents which occurred at about 6.16 p.m. and 6.19 p.m. on December 11, 1958, between Urmston and Trafford Park, London Midland Region. A Liverpool—Manchester express collided at speed with the jib of a contractor's tracked mobile crane and its skip load of wet concrete which had fallen across the line when the crane capsized on a road outside the railway boundary. The train was derailed and was struck by a Manchester—Wigan passenger train. A passenger who had alighted from the first train was killed and 37 people were injured. Colonel Reed thinks it not unlikely that if the train crew of the up express had possessed flares the down train would have been warned and its driver would at least have been able to whistle before the collision; the passenger who was killed might then have got out of the path of this train. The crane was being used for pouring concrete into the shuttering for a new retaining wall preparatory to the construction of a road bridge. The inspecting officer regards as "insufficient" the co-operation between the railway, Lancashire County Council engineers and the contractor, and considers that "if there had been better co-operation precious time would not have been lost in taking warning measures when the crane fell." He also suggests that on busy lines such as this a telephone to the signalbox, with a readily recognised call sign, is of more immediate value in an emergency than flags, hand lamps and detonators. Arrangements to this effect have been put in hand on the London Midland, and the "unsatisfactory aspects" of the procedure for providing watchmen are also being reviewed. "Flares," he says, "ought to be available for use by watchmen on bridge works such as this."

Obstruction by Passengers

SURPRISINGLY, *The Times* in a leading article supports the irresponsible behaviour of passengers who refused one day last week to leave a London Underground train which had to be taken out of service because of faulty door mechanism. "It is typical," the article states, "of the arrogant self-righteousness of so many large-scale organisations when dealing with the public today that London Transport do not appear to realise that the real cause of the trouble was the inefficiency of their service." In ensuing correspondence Mr. R. M. Robbins, secretary and chief public relations officer of the L.T.E., points to the difficulty of avoiding failures of this kind and to efforts to reduce their incidence. When they do take place, he says, these necessitate a request to passengers to leave the affected train for their own safety and to minimise delay to other travellers on the line. His reference to "repeated explanation" in this case by a responsible official is denied by one of the passengers, who writes of "a bawled injunction of 'all out,' or something of the sort," though what other course is possible on a high frequency service, where every second counts, it is difficult to see. "What is unreasonable about being asked to transfer to another train?" queries another correspondent. "I can only assume that you and the 'rebel' passengers would rather have the whole system held up while the door mechanism was repaired or, alternatively, passengers ride on with an element of risk." Yet another writes that while decrying the state of affairs that produces delays "we must deplore the childish form of protest adopted in this and other cases," and suggests it is to the passengers concerned that "we should direct our disapprobation."

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

★

Yet Another Plan

SOMEWHAT late as fodder for the election campaign, if, indeed, it was so intended, the National Union of Railwaymen has prepared a policy statement on transport. Although some of the points made are not unreasonable, fear of the railways being modernised and streamlined to provide better employment for fewer men is made to appear the main theme. The introduction sets the keynote:

> "Today, British railwaymen are facing tremendous problems. The general outlook is depressing. They see their industry crushed with an unfair financial burden. Railways are threatened. The railway capacity is being reduced. More cutting is planned, with all its acute human problems. There is considerable anxiety about future work in almost every department. Railway workshops seem rapidly to be declining in importance and potentialities. Many men are being displaced. There is a real sense of insecurity among thousands of railwaymen. It is all the more painful because upheaval on this scale is something which few on the railways have experienced before. Or, if they have, it was during the depression years when they were not alone in their trouble."

In other words, what is being put forward is special pleading for the railways to be retained in a privileged position which, whether railwaymen like it or not, the traders and general public of this country do not appear to think they deserve.

Fear of Redundancy

FEAR of redundancy is very understandable and if this document is to be believed it is not mitigated by the negotiated redundancy agreements. "As with lightning," it says, "redundancy may strike in unexpected places. If most of these inevitable consequences of technical modernisation and re-equipment are understood, they are accepted reluctantly because railwaymen, like everyone else, naturally dislike inconvenience and radical change. What they do not accept so readily are changes which they believe have been forced on to an unwilling British Transport Commission by the policies of Governments which do not like public enterprise. Technical changes, they believe, should be made not purely on grounds of economy, especially when the demand for economy arises because of unjust burdens and limitations placed on public transport by an unsympathetic Government. Technical changes should be made to improve services for the public, not to meet the pressures of prejudiced politicians." Further on there is the complaint that the Commission's activities are conducted in subjection to obligations to "financial barons and stockholders." The 1953 Act obviously rankles, as does the question of pay and conditions being subjected to the ability of the industry to pay.

More Co-ordination Sought

WHAT is proposed on the positive side? The ideas put forward may be summarised in these terms. Co-ordination of the major forms of transport is again asked for, together with modernisation that does not include contraction based on "short-sighted economies," but would allow increased railway facilities and provision for the bulk of long-distance freight to go by rail. Interest-free Government loans for modernisation are proposed, with relief for the B.T.C. of some of the interest burden on original compensation stock—particularly in respect of redundant or obsolescent assets. A minor relief proposed is that the B.T.C. should not bear the cost of services for strategical or defence purposes, nor the cost of maintaining road bridges over railways and pleasure canals, etc. Compensation for the B.T.C. is suggested if it is expected to keep fares and charges below the economic cost of providing them. Control of long-distance road haulage by limitation of area of operation for commercial operators is again high on the list, with control of C-licensed vehicles by limited radius and proof of need. It is suggested that private passenger undertakings be transferred to public ownership to allow proper organisation of passenger transport; municipal undertakings would have to co-ordinate themselves with national and area schemes. Management personnel should have a co-ordinated outlook—viewing transport as one industry, with area transport boards made up of functional management, making the present regional boards unnecessary. Civil service conditions are proposed for the workers, with minimum working conditions laid down by law, to include legal prevention of excessive hours. Guarantees for workers who become victims of technical changes are proposed. Full use of railway workshops is demanded—even if they have to be given work outside the industry.

Time to Wake Up

SOME of the railwaymen's fellow trade unionists in the railway locomotive and rolling stock industries, already experiencing a thin time, may think the last-mentioned an uncomradely claim. For that matter road transport workers may not see eye-to-eye with any clipping of road operators' activities. The proposals for reviving area schemes for road passenger transport seem hardly to take account of the fact that principal opposition a decade ago came from Socialist - controlled municipal transport operators. We are not unaware that rail and bus co-ordination is imperfect, but neither is co-ordination of certain undertakings under one ownership. This arises from certain limiting factors which have to be recognised and which are little to do with separate or private ownership. One feature is that relatively few bus passengers want to transfer to and from railway services. It is time railway workers abandoned thoughts of persuading Governments to grant a subsidy and came into line with their managements in realising that the railway as it existed in the nineteenth century, in horse-and-cart days, has been outmoded by the development of motor transport and by the intense desire of all classes of the community to possess their own private vehicles. That is whence the urge comes to prune the railway system and to make the rest more productive, rather than from mythical "financial barons." The fixed interest stock was, after all, part of the Socialist nationalisation machinery in 1947. It is ironical to think that had it not been for railwaymen themselves a much bigger co-ordination of rail and road freight transits could already be in operation between the railways and B.R.S. by means of containers. The pallet, the container and the combined rail and road vehicle may yet save the day for the railways if railwaymen are prepared to recognise that times have changed, and in any event that traders want speedy service, freedom from damage and freedom of choice of transport medium if they are to conduct their businesses efficiently.

NEWS SUMMARY

THE Ford Thames-Duple coach which left London on the night of October 2 in Moscow on October 4 having covered 1,713 miles at an average running speed of over 51 m.p.h.

The London Midland Region announces suspension of its London—Birmingham—Wolverhampton express service from November 2, with other notable train alterations, in the interest of acceleration of pre-electrification engineering works; the London—Crewe target date for electric traction is 1964. An augmented Western Region London — Birmingham—Wolverhampton service will be provided at approximately hourly intervals. Some Manchester services will operate from St. Pancras.

A meet-the-trader tour of Norwegian ports is being made by British Waterways under the aegis of Mr. T. H. Thornton, North Eastern divisional manager of that undertaking. The exhibition is being carried on s.s. *Volo*.

Coras Iompair Eireann is closing an additional series of little-used branch railways as from January 1, 1960.

The International Harvester DCF405 motive unit range for articulated vehicles is now offered with vee-belt drive for the rear axle of four-wheeled bogies, a hydraulic ram to lift the cab off the engine, and an optional 375-h.p. International Harvester diesel engine—another innovation. See page 14.

B.K.S. Air Transport proposes a vehicle ferry service between Liverpool and Dublin. It has the support of Bord Failte, the Irish tourist organisation.

BEN LINE STEAMERS

Centenary of Eastern Trade

LARGE PRIVATELY-OWNED FLEET

THE history of the Ben Line is one of the most remarkable in the annals of British shipping. Its genesis may be traced to the fortuitous decision of an Edinburgh building firm to purchase a vessel for the importation of Italian marble; this chance venture ultimately developed into one of the world's oldest and best-known privately-owned shipping lines. The centenary of the Far East trade of the line was remarked upon in our October 3 issue.

It was just 134 years ago that the brothers Alexander and William Thomson went into partnership as shipbrokers at Leith. Their first recorded ship was the *Carrara* of 218 registered tons, but the marble trade did not prosper for long, and by the 1840s the firm had established its main business in the North Atlantic trade, carrying coal on the outward run and returning with timber. In those days the risks were high, but the stakes were even higher, and some idea of just how lucrative a voyage might be can be got from the accounts of the barque *Joanna* (555 tons burthen) on her round trip to New Brunswick in 1851. Having been acquired and fitted out at a cost of £1,150, she sailed in ballast and picked up a cargo of timber for slightly less than £1,000, which on arrival at Leith was sold by auction for £2,620 net. After £451 had been deducted for the expenses of the voyage, profit of £1,172 was left to be divided among the proprietors, so that in this instance the entire cost of the vessel was paid for in a single voyage!

Expansion

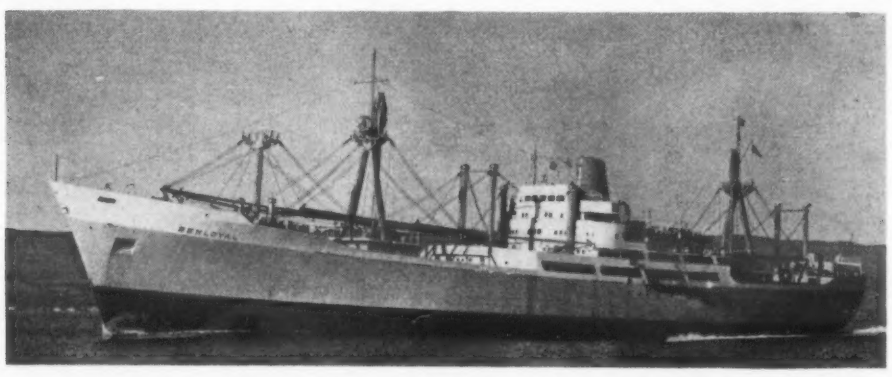
In 1847 the elder brother Alexander withdrew from active partnership and the name of the firm was changed to William Thomson and Company, a style which the managing company of the Ben Line has retained ever since. Throughout the 1850's the business expanded rapidly. Fine ships like the *Araby Maid, Bencleuch, William Mitchell, Adriatic* and *Algiers*, the latter of over 1,000 tons gross, were making voyages of up to 15 months to many parts of the world, while the smaller ships maintained the well-established North Atlantic trade. It was at the end of this decade that the cargo for the home ports could be found. The expansion of the company's business in the East is well illustrated by the continual growth of the size of its vessels. By 1896 this had reached 3,381 gross registered tons—just double the size of its first steamship in 1871. The *Benrinnes* of 1914 was of 5,000 tons gross, and at the outbreak of war the fleet, excluding the Baltic traders, consisted of 14 vessels of between roughly three and five thousand tons. The Russo-Japanese war did not interfere much with the company's trading, although it did stimulate a Japanese demand for secondhand shipping, and a number of old Ben Line steamers were disposed of very conveniently in this way.

The main outward cargo was still coal, although steel and machinery were also of increasing importance. Return cargoes were varied beyond description, and the problem of stowage could become an extremely complex matter when a vessel had to visit perhaps a dozen ports and range far and wide over several months. Nowhere in the world does long experience in such matters count for so much as in Far Eastern waters, where apart from the ordinary run of cargoes, and human migrants, a ship may be expected to load anything from the spawn of shellfish to wild animals, tropical birds, and a couple of hundred tons of dried cuttlefish!

Effect of War

Inevitably the 1914-18 war had a catastrophic effect on further progress. Seven ships were requisitioned and two were destroyed, but more serious than this the company emerged from the holocaust with its resources so badly depleted that the situation led inevitably in April, 1919, to the formation of a limited liability company, the shareholders being those who had previously held some financial interest, with the former private partnership in complete management of the limited company.

In this postwar scramble many ships were acquired and disposed of, but by 1921 the firm resumed building with a new ship, the *Benreoch* of 5,818 tons gross, and a speed of 12 knots. For the first time the old traditional clipper bow was abandoned, and with it the raking masts that had



The "Benloyal" proceeding light at about 20 knots during her sea trials. This vessel, which has now entered service, has a gross tonnage of 11,463

Araby Maid sailed on her epic two-year voyage to the Far East and paved the way for a trade that was to eventually become the mainstay of the company's business.

During the 1860's nine new vessels were acquired, but against this must be offset the loss of the *Araby Maid, Joanna, Golden Pledge*, and *Alexandra I*, together with the sale of the *Bencleuch*. The main drift of policy during this decade was towards trading ventures in Far Eastern waters. Outward cargoes were invariably coal, since wherever there were steamships there was the need for coaling stations and in the absence of local supplies, by far the cheapest method was to take it there by sailing ship It was also at this time that the abolition of the fiscal preference enjoyed by Canadian timber brought about a decline in this hitherto profitable trade, which was eventually entirely replaced by imports from the Baltic and Scandinavia.

End of Sail

The inevitable end to the monopoly of sail in the fleet came in 1871 when the company took delivery of its first steamship, the *Benledi* of 1,557 tons gross. Despite her success, four more large sailing vessels were acquired between 1872 and 1875, and they were the last. That this final decision was taken exactly at the time when William Thomson formally retired may be taken as something more than mere coincidence. His two sons who succeeded him clearly favoured steam, and three new ships, including the *Benalder* of 2,000 gross registered tons were in service by 1880. These new steamships were deployed in opening up the Far Eastern market, but the overall pattern of the company's trade remained diffuse.

Passengers had been carried even before the emigrant boom started by the Australian gold rush, but then as now this side of the business was only of incidental importance. By the nineties the disappearance of sail from the Thomson fleet was almost complete—the last ship being the big iron barque *Bencleuch II*, which was sold to an Italian concern in 1898.

Baltic Fleet

As the Canadian timber trade declined so the Baltic imports increased. Originally commenced in 1878 with two steamships, this business reached its peak in 1914 when it engaged the services of five vessels throughout the season, which was from April to November each year. The profits, however, were never very great, and it often happened that a single voyage to the Far East during the winter months would show a higher profit than a vessel's entire trading account for the season in Baltic waters. The intervention of the 1914-18 war and the subsequent effects of the Russian revolution dealt this enterprise a blow from which it never recovered, and the last of the vessels on this trade was disposed of in 1927.

The Eastern Trade

Already in the 1880's regular monthly sailings to Singapore and Hong Kong had established a service which shippers could rely on to meet their needs. Beyond these ports trading was carried on mainly at the captain's initiative until a suitable hitherto earned the Ben Line steamers the soubriquet of the Leith yachts. On the whole the period between the wars was not a happy one, but despite all the misfortunes and difficulties that beset the management during this score of years, the gross tonnage of the fleet rose from 64,500 deadweight in 1919 to 145,750 in 1939, and much of the old trade with the Far East had been redeemed.

Postwar Recovery

Between 1940 and 1945 the Ben Line steamers lost 14 of its 20 ships, and four more placed by the Government under its management. Once again there followed a period of reconstruction and the re-establishment of normal trading. A substantial fleet of large vessels was got together in a remarkably short time, and events favoured a rapid recovery of the company's business inasmuch that for political and economic reasons the consolidation of British interests in the East became a matter of paramount importance. By 1948 the acquisition of four new vessels, each of 7,846 g.r.t., reflected the tempo of the firm's revival, and in 1950 with 47 outward sailings and 44 homeward sailings, the figures surpassed the number of voyages undertaken in prewar years. A further four large vessels were added in the same year, and today the fleet consists of 22 oceangoing vessels and a coaster, all built since 1943, and having a total gross registered tonnage of 188,556.

"Benloyal"

As 1959 is the centennial of the Eastern trade it is fitting that it should be celebrated by the introduction of a new class of ship. The first of the new vessels, the *Benloyal*, has been described as one of the finest looking cargo ships afloat, and it requires no practised eye to discern that she is a worthy successor to the old Leith yachts. She is turbine-driven, with a service speed of 19 knots and a gross tonnage of 11,463; features include a storage capacity of over 1,000 tons of latex and edible oils, and 14,800 cu. ft. of refrigeration. First-class accommodation is provided for 10 passengers, and in accordance with the line's practice, all members of the crew have individual cabins. The overall length is 549 ft. and moulded breadth 71 ft. with a loaded draft of 30 ft. and a moulded depth of 44 ft. 6 in.

Present-day Service

Every week a Ben ship loads in and sails from London for the Far East, and every month two vessels sail direct to Singapore and arrive there in 22 or 23 days: the vessels on these two services also provide fast passage times to Bangkok, Hong Kong and Manila. Port Swettenham and Penang are the first discharge ports in the East of the other monthly sailings. Other ports at which Ben Line vessels regularly load include Middlesbrough, Grangemouth, Hull, Hamburg, Rotterdam and Antwerp and cargo is accepted for Egypt, Malaya, Singapore, Thailand, Borneo, Philippines, Hong Kong, Taiwan (Formosa), China and Japan.

On the homewards trip four services are operated. One of these is a very fast monthly service from Hong Kong, Port Swettenham and Singapore to London, Rotterdam, Bremen and

(*Continued on page 6*)

The cabs of Atkinson lorries are constructed of polyester/glass fibre by the hand lay-up method on a metal mould.

Atkinsons say yes to Polyester!

with their handsome cab moulded from structural plastics

Cabs for commercial vehicles are ideally made of structural plastics. Atkinsons Vehicles Ltd., of Walton-le-Dale, are now constructing the cabs of their diesel lorries with Beetle polyester resin/glass fibre, and the example shown —one of a fleet of new vehicles supplied to Robinson's Transport (New Worley) Ltd.—fully exploits the advantages of structural plastics. The cab is of one-piece construction, giving lightness, strength, and durability. Any knocks or damage can be easily and cheaply repaired.

Atkinson Vehicles Ltd. now fit lighter, more durable cabs than hitherto, and the net weights of their vehicles are reduced with advantage to their payload capacity.

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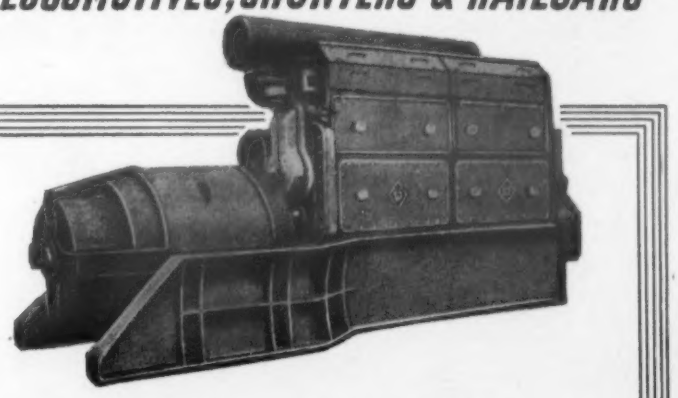

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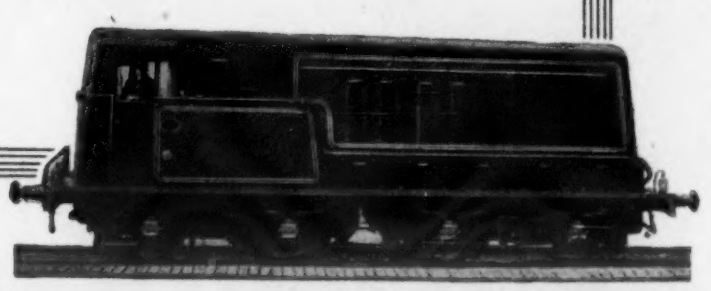

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L.268A

LORRY—BUS—COACH

Resolutions for R.H.A. Conference

HEADING the list of resolutions selected for consideration at the annual conference of the R.H.A. at Bournemouth on October 26 and 27 is one protesting "most strongly" against the Government's policy of protection of the railways as instanced by the Government loans for railway modernisation and financing of trading losses, having regard to the many competitive disadvantages which road hauliers have to bear, and urging the Government to discontinue this policy of unfair discrimination. Another seeks that steps be taken to sustain during 1960 an advertising campaign in trade journals for the purpose of securing an increase in the traffic carried by members of the Association.

There is a proposal that the R.H.A. should "interest itself (if necessary through other companies) in helping members to work more closely together particularly for the purposes of acquiring traffics now handed out in bulk and in respect of which the many small members of the Association have no hope of obtaining a share except through clearing houses at rates which are often reduced many times from those which the industrialist or manufacturer is paying." On an associated theme, the North Western (Eastern) area of the Association wants to see clearing houses licensed.

A new system of motor taxation based on the maximum gross weight of goods vehicles, as determined by the manufacturers, is urged in a further resolution and the current headache of normal user is referred to in a motion that "in view of the interpretation being placed on the phrase 'normal user,' which in the opinion of the Association was never intended by the Road and Rail Traffic Act, 1933, and the Transport Act, 1953, the Government be requested to restore the position of A-licence holders as established by the original interpretations of the 1933 Act." Among resolutions of a technical nature is one urging the R.H.A. to seek an amendment to section 17 of the Road Traffic Act, 1930, so as to permit the use of without a statutory attendant of a trailer fitted with air brakes (twin air line brake system) and emergency stop valves or automatic braking device.

Municipal 40-Hour Week Talks

OCTOBER 15 has been fixed for the examination of the claim for a 40-hr. working week for municipal bus workers by employers' and trade union representatives on the wages committee of the National Joint Industrial Council for the Road Passenger Transport Industry. A statement issued by the council says that after a discussion of the trade unions' application for a 40-hr. week in the provinces it was decided that both sides should examine the existing national agreement, with a view to exploring the possibilities of introducing a reduced working week in the light of economies which might be effected.

Overtime Ban in London Dropped

LONDON busmen, through their negotiating committee, have rejected a proposed overtime ban in support of their pay claim, but only by the narrow margin of six votes to five, with two abstentions. The motion was negatived by the Country area men and the trolleybus depots, it is stated. The meeting endorsed the new wage claim for £1 per week; it now has to be approved by the national co-ordinating committee.

Sale of L.T.E. Rover Tickets

ROVER bus tickets, which give a day's unlimited travel on London Transport services, have had a record sale of over half a million to date this year. The fine summer has helped to boost them. The biggest sale—347,000—has been in 5s. Green Rovers which can be used any day of the week on 1,400 miles of Country bus services. Red Rovers, also 5s. in cost, sold for week-end trips on Central buses and trolleybuses, totalled over 200,000. There is also an 8s. 6d. Twin Rover, conferring the freedom of Central buses and most of the Underground.

This A.E.C. Reliance, operated by A. Timpson and Sons, Limited, was reported to be the first coach across the new Chiswick flyover in West London on September 30 immediately after it had been opened

Employees Enforce Standing Ban

BUS crews in Sheffield on Sunday last brought into operation their threatened ban on standing passengers on all buses with more than 56 seats. Their decision to do so, made in September, had been reaffirmed at a mass meeting on October 2. Sunday, October 4, was the first day of the working of the new 78-seat Leyland Atlanteans, 15 of which replaced 60-seat trams on two routes (see page 9). Alderman Sydney Dyson, chairman of Sheffield Transport Committee, has said: "If the committee is expected to accept responsibility for operating the vehicles, we are entitled to expect responsibility from our employees." He added: "I have not said anything before on this problem because I felt it was better to proceed in the normal way of management and administration. So far as we are concerned the intention is that these vehicles which have been brought into service should be operated within the terms of national agreements. I know negotiations are now taking place and the transport committee will honour any result of these negotiations and carry them out." His remarks were made before the threatened ban was implemented.

Unlicensed Vehicles Left on Roads

FROM October 1 all vehicles which are left standing on public roads for any period must be licensed even though they are not being used in the ordinary sense. This applies to vehicles which are laid-up by their owners and which, because of lack of garage accommodation, are kept on the road as distinct from being driven. Vehicles may not be "kept" on public roads in this way under trade licences. These changes are enforced under the Finance Act, 1959 (section 10 and third schedule).

Security Measures Will Stop Thefts

AS a result of the response to theft questionnaires sent out to members, and additional statistics from other sources, the recently-formed vehicle security committee of the R.H.A. is able to give a clear picture of the pattern of lorry thefts in this country. In the first six months of 1959 the number of thefts of lorries or their loads in the Metropolitan Police district, the most vulnerable area, rose to 2,000, and their value was estimated at £275,000. These figures compare with 1,600 thefts, valued at £211,000, in the first six months of 1958 and the increase in the first four months of 1959 shows no sign of slackening, being 25 per cent up on 1958.

No less than two-thirds of the total number of lorry thefts occur in the London area and nearly all the vehicles or loads stolen in London are stolen in the Central area, near the docks and the big markets. The pattern also points to the conclusion that many of the thefts which occur outside London are the work of London gangs. Other big towns such as Glasgow and Manchester also suffer badly from thefts. Among the most vulnerable goods are:

	Percentage of total thefts reported
Food	35
Domestic electric appliances	10
Textiles, clothing and shoes	9
Cigarettes and tobacco	4
Other consumer goods	12

The vast majority of vehicles is stolen when they are parked in the street or outside a café. A surprising number of thefts occur when the vehicles are in a car park, and car parks should not be considered safe unless there is an attendant who is on duty all the time. Most vehicles were stolen at night; about 70 per cent of the thefts reported happened between 6 p.m. and 6 a.m.

One operator who sub-contracts part of his work fits security devices to his own vehicles, but is unable to insist on the sub-contractors doing likewise. In recent months there were only five cases of theft from his own vehicles, while from the sub-contractor's lorries there were 450 thefts of his goods in the same period, although he sub-contracts the smaller part of his traffic. Another operator who, for practical reasons, could not fit security devices to all his vehicles, suffered a number of thefts during the last 18 months. But not one of his vehicles which were fitted with devices was stolen.

B.R.S. Embargo on Parcels

BIRMINGHAM traders have complained of goods not being collected recently by B.R.S. (Parcels), Limited, and the company has admitted that it suspended all collections on September 21, and the weekend September 25 to 28 (inclusive), as it could not cope with a sudden increase in traffic for delivery in Birmingham. The area manager said that the company had tried to hire from about 20 other firms. At the recent inquiry into an application by Collins Express Parcel Service, Limited, the B.R.S. spokesman said that his company had surrendered or was about to surrender A-licences for six vehicles in the area.

Bus and Coach Developments

A. Timpson and Sons, Limited, applies for the licences of Bourne and Balmer (Croydon), Limited, which company it already controls.

Maidstone and District Motor Services, Limited, proposes to operate certain journeys between Tunbridge Wells and Kilndown branching off Route 80 (Tunbridge Wells—Hurst Green or Hawkhurst).

Leyland RTL-class double-deckers are shortly to make their appearance for the first time on London Transport Country area routes (save at weekends and for experiments) in green livery. About 18 will be stationed initially at the new Stevenage Garage. The move is occasioned, it is stated, by changing vehicle requirements in the Central and Country area fleets. The A.E.C. buses at Stevenage are being distributed to other Country garages.

On October 4, the Wadsley Bridge—Woodseats tram routes of Sheffield Transport Department were replaced by bus routes extended at either end. They are: 42, Foxhill—Woodseats (Abbey Lane Cemetery) via Shoreham Street, and 53, Parson Cross—Woodseats (Abbey Lane Cemetery), via Queens Road. The Foxhill extension is via Wilcox Road and Foxhill Road and that to Parson Cross (Wordsworth Avenue) is via Deerlands Avenue. Route 110, City—Parson Cross, is extended via Holgate Avenue, Colley Road and Colley Crescent to Rokeby Drive. A new workers service, route 119, operates between Meadowhead and Vulcan Road (Tinsley) via Shoreham Street. Elsewhere in the city, a new route 43 operates between Pond Street and Hemsworth via East Bank Road, Gleadless Road and Blackstock Road.

MORRIS WINS ON VALUE

For example, see what the forward control Morris 5-tonner gives you. All-steel cab, sealed against dust and draught. Wrap-round toughened screen for safety vision. Foam rubber seat cushions. Four-way adjustment to driver's seat. Easy-reach switch grouping. Choice of petrol or diesel engine. Rigid chassis structure.

Morris 5-tonner forward control standard platform truck: £956.10
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MC 42

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

NEW LIGHTING FOR JERSEY AIRPORT

Overcoming Problems of Site

THE past summer saw the bringing into use at Jersey Airport, which handles up to 380 aircraft movements a day—a figure surpassed only by London among British airports—of a complete new airfield lighting system supplied by the General Electric Co., Limited. This new installation provides considerable assistance to pilots approaching to land in bad weather conditions, particularly in the case of the newer and faster types of aircraft now using the airport.

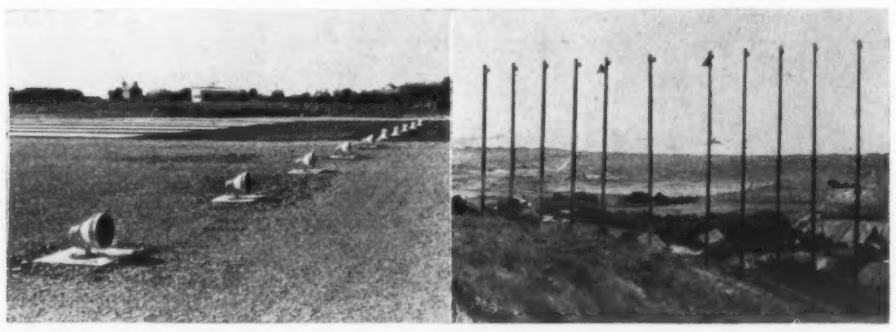
The runway, which is being extended from 4,450 ft. to 5,000 ft., is provided with high-intensity runway lights, threshold lights, and wing bars; all of which can be controlled in five steps of brightness down to 1 per cent. The approach lighting has been improved and allows high- or low-intensity lighting to be selected, again with variable brilliancy settings. In addition, edge lighting is being provided for the new taxiways now under construction and for the apron area, which has been extended.

Night view of the east approach lighting system. It comprises a 3,000-ft. centre line with crossbars at 1,000 ft. and 2,000 ft. from the threshold

Runway Lighting

The low-intensity flush runway lighting installed shortly after the war has been replaced by new G.E.C. type ZA.105 high-intensity elevated lights. These lights employ an optical system having a one-piece pressed heat-resisting glass refractor designed for use with the 6.6-amp. 200-watt tubular Osram lamp. The lens is in the form of a dome embodying two prismatic panels positioned to give two high-intensity beams elevated 3 deg. above the horizontal and toed in 3 deg. towards the runway centre-line. In accordance with present-day requirements for operations with Viscount and Britannia type aircraft, the overall height above ground of each lighting unit does not exceed 10½ in.; the unit is of light construction mounted on a frangible base.

Spaced at 200-ft. intervals along each side of the runway, the lights provide a maximum beam intensity in both directions of 35,000 candelas. At the same time they give an omni-directional component averaging 2,000 candelas. The lights are wired on two independent interleaved circuits for added security. Each light is fed by a type XT.107 series isolating transformer and the primary windings of all transformers on each circuit are connected in series on a 3-kV single-core ring cable, which is butyl rubber insulated and P.C.P. sheathed.



Threshold lighting at the east end comprises high-intensity bi-directional elevated lights on the runway and, in the foreground, wing bars of high-intensity and uni-directional lights—all with green colour filters; right, the single crossbar of the west approach lights where the sharp fall away of the ground allows provision only of this and a short centre line

Threshold and Approach Lighting

At the west end of the runway, where an extra 100 ft. is available for take-off only, the 10 existing type ZA.100 flush 100-watt threshold lights have been retained and connected into the new system. These threshold lights are now supplemented by wing bars, each consisting of five 100-watt type ZA.106 uni-directional elevated lights fitted with green colour filters. At the east end the threshold lights are of type ZA.105, similar to those used on the runway but equipped with green colour filters, again supplemented by two wing bars of ZA.106 uni-directional lights.

Two years ago high- and low-intensity approach lighting was installed at both ends of the runway. At the west end, due to the very sharp fall-away of the ground from the end of the runway, it was possible to provide only a short centre-line of 500 ft. with a 100-ft. wide crossbar. This system was equipped with ZA.406 (high-intensity) and ZA.400 (low-intensity) lights. At the east end a 2,000-ft. centre-line with a 100-ft. wide crossbar at a distance of 1,000 ft. from the threshold was installed, again equipped with both high- and low-intensity approach lighting. The lights on the centre-line were spaced at the standard nominal spacing of 200 ft.

With the extension of the runway—which has involved considerable earth-moving and filling—the whole of the east approach system has been moved outwards. The centre-line has been extended from 2,000 to 3,000 ft. and an additional crossbar provided at a distance of 2,000 ft. from the threshold. Both high-and low-intensity systems are fed on series circuits, using 200-watt lamps and XT.107 isolating transformers. Since most of this equipment is sited in agricultural land outside the airport boundary, paper-insulated lead-covered and armoured cable has been used. The high-intensity approach lighting is controlled in five steps of brightness down to 1 per cent and the low-intensity lighting in three steps down to 10 per cent. Both systems can be used simultaneously if required.

Taxiway Lighting

Included in the programme are access taxiways to each end of the main runway from the apron and a short taxiway from the apron to the centre of the runway. These taxiways, together with the outer limits of the apron, will be marked with ZA.202 flush taxiway lights, housing 45-watt 6.6-amp. lamps wired on series circuits using XT.105 transformers; each circuit will be independently controlled.

All lighting is controlled from a console in the control tower, from which a 50-volt d.c. control cable runs to the switchroom housing the airfield lighting switchboards. This equipment consists of a number of G.E.C. contactor cubicles and main series circuit transformers.

The terminal buildings at Jersey Airport with new floodlighting and apron lighting

FOR MODERN TRAFFIC...

At the handsome new garage erected for the Hants. and Dorset Motor Services Co., Esavian folding and sliding doors have been installed to smooth the flow of 'buses. Easy to operate, they speed the peak period work, fold back flush and add to the general good looks of the building. Please write for Esavian data sheets.

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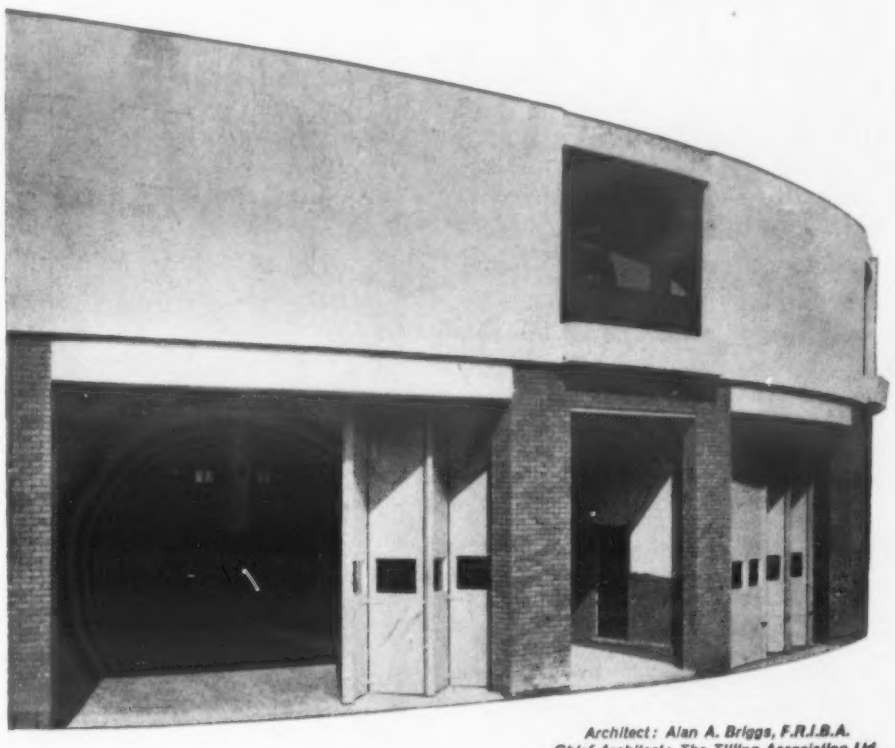

Architect: Alan A. Briggs, F.R.I.B.A.
Chief Architect: The Tilling Association Ltd.

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—because the battery it is using is appreciably lighter than others of equivalent power—besides being exceptionally dependable. More and more manufacturers, and operators, are finding—

The high-capacity TX Series (Illustrated) incorporate 'X' metal grids, 'Fibrak' separators with vitreous felt retainer mats, cold start plates and moulded hard rubber (ebonite) containers and, where required, assembled in double-impregnated hardwood containers. Available in capacities of 145, 174, 232 ampere hours (at 10-hour rate).

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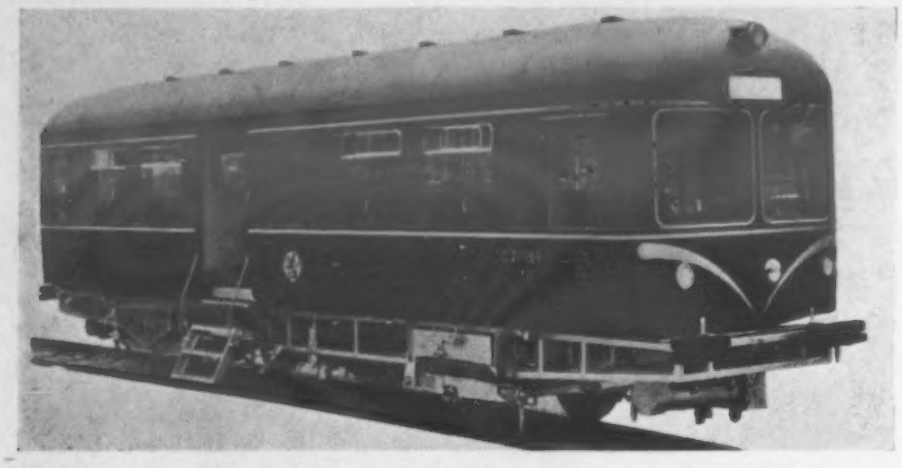
AIR-SUSPENDED RAILBUS

Wickham Vehicle for British Railways

As we recorded briefly at the time, an interesting experiment in railway-vehicle suspension was initiated recently when the last of an order for five railbuses was delivered to British Railways by the manufacturer, D. Wickham and Co., Limited. This vehicle, although generally similar in design to the four earlier cars, which were described in MODERN TRANSPORT for September 20, 1958, employs pneumatic suspension developed by the Andre and Westinghouse companies in place of the conventional semi-elliptic leaf springs.

The axlebox is located by the usual Wickham radius bar fitted with Metalastik rubber bushes to eliminate wear and the need for lubrication. The radius bar however extends beyond the axlebox and the free end is connected to transverse radius arms, also fitted with Metalastik bushes, to relieve the air bags from side loading caused by side thrust between wheel flange and rail.



The last of five Wickham railbuses built for British Railways is fitted with Andre-Westinghouse air suspension

General Arrangement

Reinforced rectangular air surge tanks are built into and form part of the underframe, while Woodhead-Monroe dampers are fitted between the free ends of the swing arms and the underframe. Mounted on and connected to the tanks are Westinghouse levelling valves controlling the entry and exit of air to the supporting air bags. The purpose of the valves is to control the air supply to the bags so that a constant floor level is maintained irrespective of loading.

Each rubber air spring comprises two elongated cells bonded together, with free passage from one to the other, and also bonded to mild-steel upper and lower plates for location purposes.

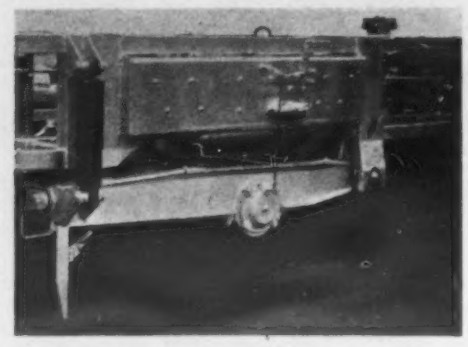
The load carrying capacity depends entirely on the available air pressure and the frequency of the springing system depends on the air pressure and volume. The approximate pressures for the vehicle are 44 p.s.i. for empty running, 59 p.s.i. for tare plus normal load and 74 p.s.i. for a 100 per cent overload. In order to obtain the necessary air volume, each spring, with a volume of 660 cu. in., is connected to its separate surge tank increasing the total available volume to 3,160 cu. in. for each suspension unit.

The spring has a frequency of approximately 87 c.p.m., giving a periodicity of 0.7 sec. per cycle, but due to the rubber bushes in the linkage the actual frequency of the system is a little higher. Each of the Andre air bags is fitted with internal bump rubbers so that in the event of an air failure the load is taken by the rubbers to obviate damage.

Levelling Valves

The Westinghouse levelling valves were specially developed for this particular application. Air from the reservoir normally passes through a filter and then through a line connected to the supply cap nut in the top of the valve, being delivered to or exhausted from the air bags by the valve through the port in the side of the valve body, to which a pipe is installed leading to the air bags. Air supplied to the suspension reservoir from the basic air system normally passes through a pressure protection valve set to open at about 74 p.s.i.

When the actuating lever of the valve is in the horizontal or neutral position the passages through the valve are closed and air is sealed in the air bags. Upward movement admits air and downward movement exhausts it. In this manner the control valve, when subjected to variations in the dimensional relation between vehicle body and axle, will compensate for such variations by increasing or decreasing the pressure in the air bags. The upper inlet valve is arranged to act as a non-return valve so that, in the event of the reservoir pressure being less than that in the air bags, air cannot flow back from the bags to the reservoir.



Close-up shot showing detail of the surge tank, air bellows and levelling valve

THE BEN LINE

(*Continued from page 3*)

Hamburg, the voyage from Hong Kong and Singapore to London being completed in 37 and 22 days respectively. Liverpool and Hamburg are equally well served and each month a Ben Line vessel reaches Liverpool from Hong Kong in 35 to 36 days and Hamburg from Malaya in 26 days. Cargo is accepted by these four services from China, Hong Kong, Japan, Taiwan (Formosa), Philippines, Thailand, Borneo, Sarawak, Singapore, Malaya, Ceylon, Aden, Port Sudan, Red Sea and Egypt for Mediterranean ports, London, Liverpool, Hull, Middlesbrough, Grangemouth, Hamburg, Rotterdam, Bremen and Antwerp.

In conclusion it is imperative to touch upon the great part that tradition has played in maintaining the strength and continuity of this line throughout its independent existence over the past 134 years. It is a subject which is inexhaustible, but here of necessity must be confined to a few facts. To this day all Ben Line ships are registered at Leith, and the greater part of the personnel are still found in Scotland. The naming of the ships after Scottish mountains goes back well over a hundred years, although as a consistent practice it did not come into force until the advent of steam vessels in 1871.

Since the early days the company's standards concerning the seaworthiness of its vessels, and its victualling have been exemplary, a fact that is confirmed by the loyalty of its old servants, and the eagerness of the oncoming generation to join the service. True, the elegant clipper bow and figurehead of the old Leith yachts has passed into the limbo of time, but the distinctive character of the fleet is no less now than it was then; new ships are still launched with the traditional bottle of Scotch, and even old customs are sometimes revived, as is witnessed by the hogshead of sherry now carried half-way round the world by some of the Ben Line ships "for the benefit of the voyage."

COLD-CURING SILICONE RUBBERS

In Bulk Production

COLD-CURING silicone rubbers developed by Midland Silicones, Limited, have been advanced from an experimental to a bulk-production basis, ensuring specifications of great consistency and continuity of supply. The great advantage of the products is that they need no heat cure; the addition of a small quantity of catalyst converts them at room temperature into heat-stable rubbery products. No special tools or skill is needed and shrinkage on curing is low.

These rubbers are made in three grades: Cold-Cure Silastomer 9159, the heavy grade which has the consistency of builder's putty and can be moulded, milled or calendered; Cold-Cure Silastomer 9160, the medium grade which can be spread or applied by caulking gun; and Cold-Cure Silastomer 9161, the liquid form suitable for dipping, injection or impregnating.

Cold-Cure Silastomer is being used increasingly in many industries for encapsulation, caulking, sealing, filleting and making flexible moulds from which resins and other materials may be cast. It can be used at temperatures as high as 250 deg. C. and as low as minus 50 deg. C.; it possesses excellent dielectric properties and gives protection against moisture, dust, oxidation and mechanical shock. A technical booklet, *Cold-Cure Silastomer* (Silicone Notes K28-2), describing the products is available from the company's head sales office, 68 Knightsbridge, London, S.W.1, or from any of the five area sales offices.

The Santa Fe Railway has installed a new electronic system for the automatic reservation and release of seats and Pullman space ("Modern Transport," August 15)

DIESEL RAILCARS

have now been supplied by METRO-CAMMELL

for British Railways Modernisation Plan

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CENTRAL ROAD TRANSHIPMENT DEPOT

For Services in the Netherlands

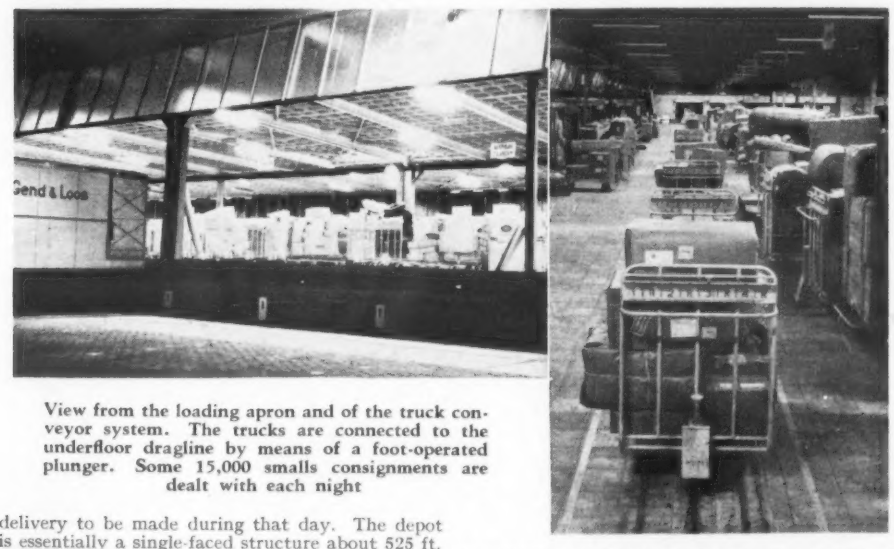
DRAGLINE TRUCK CONVEYOR SYSTEM ADOPTED

ALL long-distance smalls transhipment freight of Van Gend en Loos, the road affiliate of Netherlands Railways, is now passing through a central transhipment depot at Utrecht, which was formally opened on September 28. The capacity of the conveyor is nominally 88 trucks. It is the first time this form of conveyor has been employed in the Netherlands. Incoming packages are loaded on to trucks at the van door rough sorted to one of four secondary sorting areas, each

The nightly scene at new Van Gend en Loos central transhipment depot in Utrecht

Van Gend en Loos undertaking has two primary functions; it provides feeder services for the railways and maintains a network of road services for its own smalls traffics between 50 towns.

Except in respect of some 15 direct connections these places are linked via the Utrecht depot. Loaded vehicles arrive in the evening and the work of the depot is carried out overnight, loaded vehicles being dispatched the following morning with traffic for their home stations in time for delivery to be made during that day. The depot is essentially a single-faced structure about 525 ft. long and 65 ft. wide and the 115-ft. wide backing-up area provides spaces for 50 vehicles, i.e. one from each outstation.



View from the loading apron and of the truck conveyor system. The trucks are connected to the underfloor dragline by means of a foot-operated plunger. Some 15,000 smalls consignments are dealt with each night

Platform movement is achieved with an underfloor dragline conveyor system laid out around the periphery. There are 500 trucks available and the containing about a dozen final sorting zones corresponding with vehicle spaces.

Route Selection

The dispatcher drops a hinged route-indicating pointer over the appropriate sorting area number from the array 1—4 shown on the headframe of the truck. If all the packages are for one delivery area he places the pointer instead over the letter R adjacent to the selected number. An accompanying illustration indicates the arrangement of this route selection device. The truck is then perambulated to the appropriate vehicle for reloading of contents. There is no palletisation of traffic. The depot is handling about 15,000 packages nightly, it is understood.

London—Moscow by Coach

THAMES-DUPLE AVERAGES 51 M.P.H.

MUSCOVITES stared with interest on Sunday, October 4, as a Ford Thames luxury coach with Duple bodywork rolled into Red Square after a remarkable high-speed run from London lasting only 44 hr. 57 min. This phenomenal time included a five-hour Channel crossing and the usual delays at every frontier—all 10 of them. The average running speed over the 1,713 miles was 51.16 m.p.h. Mr. Peter Wright, truck sales manager of Ford Motor Co., Limited, was in charge of the operation.

No other coach has ever attempted—let alone achieved—such an ambitious schedule. The object of the exercise was to explore the possibilities of a regular low-price London to Moscow tourist service, which Excelsior European Motorways, Limited, the Bournemouth coach operators, hope to introduce for the summer of 1960. The trip also shows Russia a first-class example of British low-price coach design. The introduction of an inexpensive tourist service over this distance demands a low-cost, high-powered, thoroughly reliable chassis and this journey proved that the Thames p.s.v. chassis with its six-cylinder diesel engine fits the bill admirably. The body is made by Duple Motor Bodies, Limited, of Hendon.

An account by the MODERN TRANSPORT representative will appear on the return to London.

Ready for the departure from London Coastal Coaches: The Thames-Duple coach of Excelsior European Motorways stands under the East Kent Europabus sign

'Keeping up with the Joneses'

The well-known haulage firm of E. H. Jones Ltd., Greenwich, say that one of their big 8-wheeler tankers has so far run 250,000 miles without any major repair. (*You've guessed right . . . it's a Leyland "Octopus"!*)

Of course, what E. H. Jones Ltd. doesn't know about looking after the welfare of their large road fleet just isn't worth knowing, but they tell us that, given normal routine servicing and a good driver, any Leyland will run more or less troublefree for years on end.

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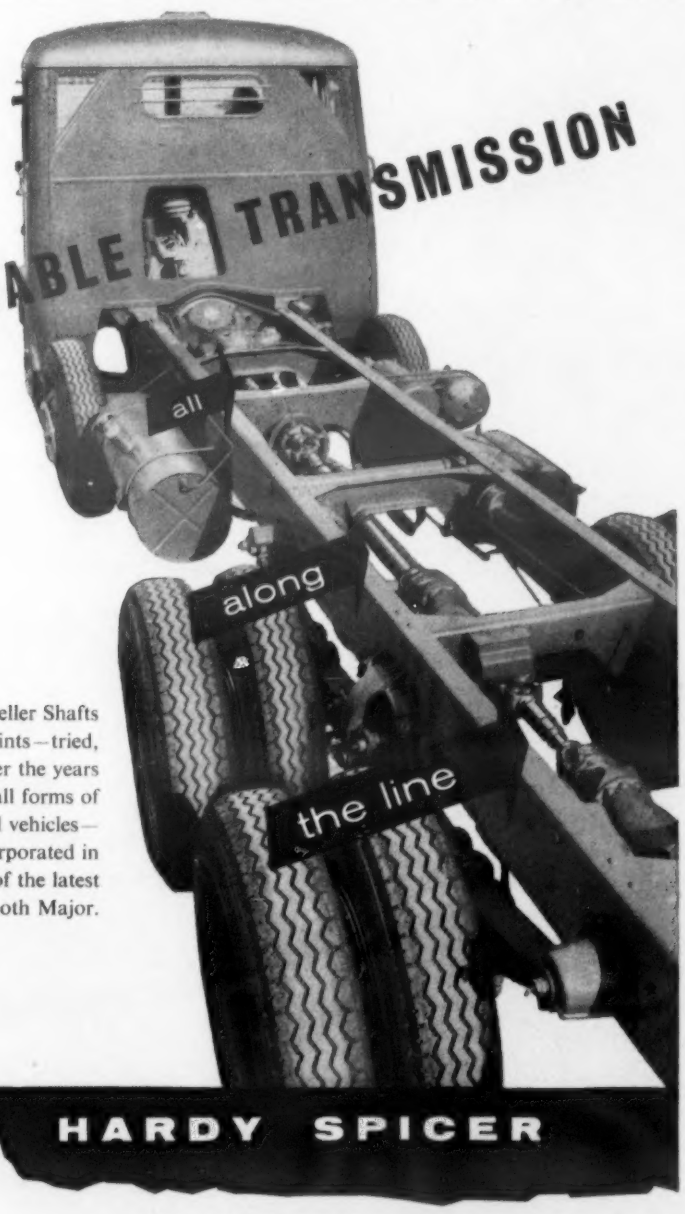

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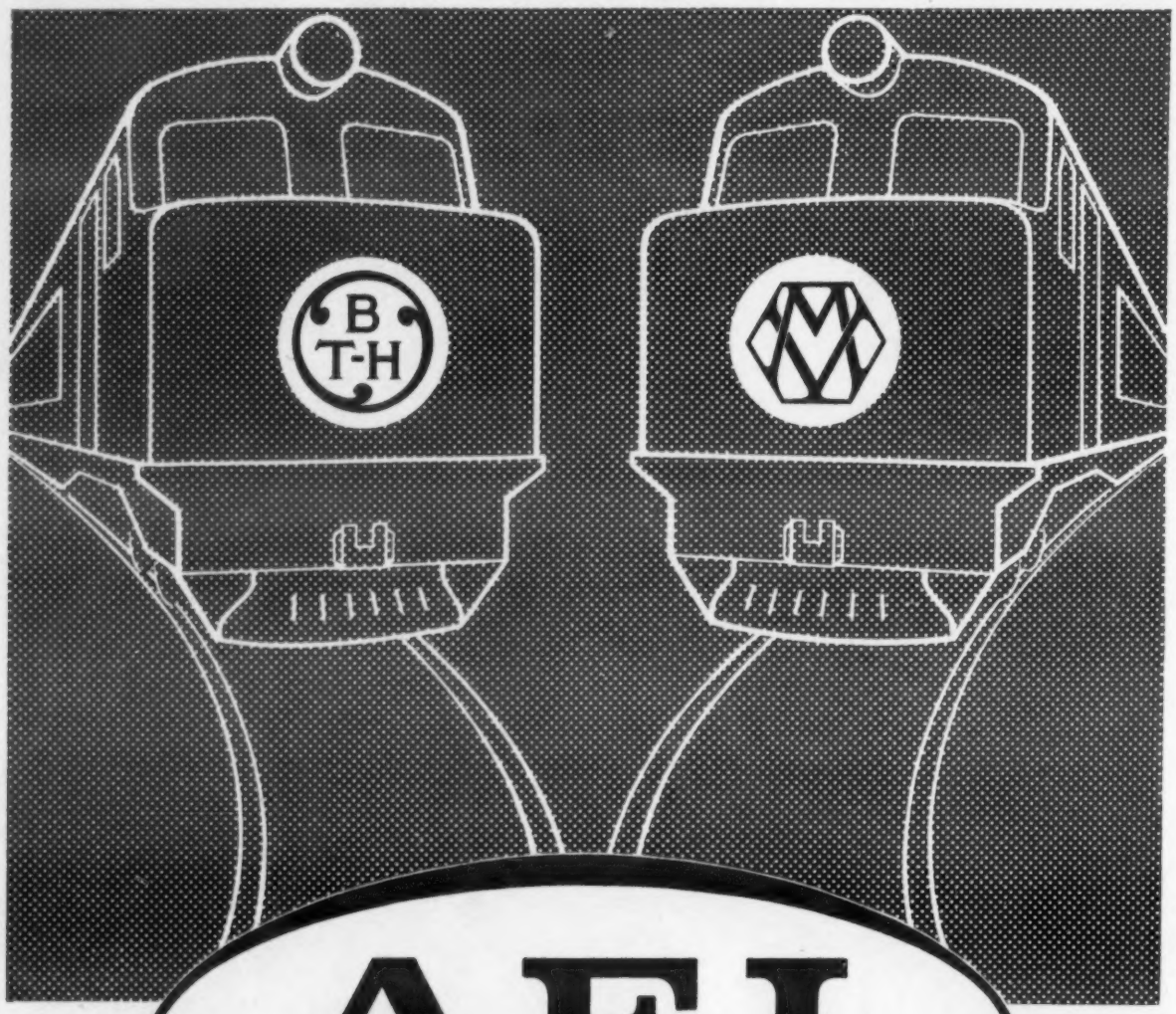

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LETTERS TO THE EDITOR

Plea for Locomotive

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.

SIR,—May I appeal for the preservation of one of the, happily, still numerous L. and N.W. 0-8-0s? This class started, in 1892, with the Webb small-boilered two-cylinder simple No. 2524 (really, in effect, an enlargement of the Webb coal engines of 1873).

The class was developed by his successor, Mr. Whale, by the conversion of his predecessor's compounds and the addition of larger boilers, while the final and perfecting development was carried out by Mr. Bowen-Cooke and completed in 1921. The class may, thus, be said to be representative of the Webb, Whale and Bowen-Cooke eras and cover a period of nearly 50 years

On these grounds alone I consider that one of them is more than worthy of preservation—especially as it was not found possible to save one of the Whale or Bowen-Cooke passenger locomotives—as so many of us must have dearly hoped.

Finally the class ultimately totalled 572—and must have been the largest owned by any single British railway at that time—and this again is, possibly, a point worthy of consideration when the question of preservation is concerned. A large number of them is—as I have already mentioned—happily still with us and will certainly be for some years, and I would most earnestly urge that one of them be restored to its old London and North Western condition and kept to perpetuate the memory of the greatest and most fascinating eras of our former "Premier line."—Yours faithfully,

J. P. BARDSLEY.

Garstang,
Lancashire.

Feltham Tramcar Preservation

SIR,—The recent correspondence in your columns regarding preservation of a Feltham tramcar overlooks the fact that, in the appendix to the 1951 B.T.C. Report on "The Preservation of Relics and Records," London Transport announced the intention of keeping a Feltham tramcar itself, as part of its historical collection. Although the last of these vehicles will be withdrawn from service on November 7, there is still time for this report to be implemented. Alternatively perhaps London Transport could make some contribution towards the cost of the private scheme which you announced.—Yours faithfully,

A. WOODWARD.

14 *Castello Avenue, S.W.*15.

Transport and the Nation

SIR, Your comments on September 12 (page 2) on Sir Reginald Wilson's British Association address are much appreciated by those who feel that "a better understanding on the part of the public of the basic truths of transport economics" is needed. Social costs and benefits seem as yet never seriously to be considered, and comparisons of potentialities of transport media have rarely been made so explicitly.

My friends and I feel that all these comments are equally applicable in the narrower and more specialised field of urban passenger transport where full-scale undergrounds, light railways (much as reserved track tramways, but more Continental in design) and trolleybuses, as well as buses, can all be considered.

You say "few are willing to accept the discipline and ideas which will ensure" efficient and economical transport. That, sir, is just the trouble, especially in urban transport. If the scientific foundation on which you feel national transport policy should be based should suggest something akin to tramways on certain urban transport routes, would this advice be accepted any more willingly than that of tramway and light railway advocates these twenty years? We advocates sincerely feel such advice will emerge: we hope it will be taken.—Yours faithfully,

B. JOHN PRIGMORE, M.A., M.Sc. A.M.I.E.E.,
London Representative,
Light Railway Transport League.

245 *Cricklewood Broadway, N.W.*2.

★

FROM TEMPLE MILLS TO CLACTON

I.R.S.E. Visit

THE autumn technical visit of the Institution of Railway Signal Engineers was held on September 19, 1959, when a visit was paid to the mechanised marshalling yard at Temple Mills and the electrified line between Colchester and Clacton. The party, numbering about 120, was led by the president, Mr. D. G. Shipp. Assembling at Stratford Station members were welcomed by Mr. R. A. Green, signal engineer, Eastern Region (a member of council), who was accompanied by members of his technical staff, of whom several acted as guides during the visit. The party was conveyed by special diesel train to Temple Mills; there it was divided into groups which, to a carefully arranged programme, proceeded to see all the main items of interest.

At the hump is a cabin where actuation of button decides the route-setting and "cut" descriptions, while transmitting forward the required information to the control tower from which the electro-pneumatic retarders are operated. Electrical storage apparatus uses electronic controls for assessment of wagon weights, rates of travel in order to provide the optimum control of each wagon as it runs down towards the sidings. The signalboxes at the east and west end of the layout operate on the entrance and exit route-setting principle. A very complete telecommunications system has been provided, with wireless control of engine movements, loudspeakers for directing the ground staff and other facilities.

After luncheon at Stratford Mr. D. G. Shipp thanked the Eastern Region, its general manager, Mr. H. C. Johnson, and its various officers for the admirable facilities granted. Mr. R. A. Green replied. A special train then conveyed the party to Clacton; between Colchester and Clacton the 25,000-volt a.c. electric traction system and the signalling alterations made for the purpose were studied.

SHEFFIELD OPERATES 78-SEAT BUSES

Atlanteans Replace Trams

INCREASED CARRYING CAPACITY

LAST Sunday, October 4, saw the introduction by Sheffield Transport Department of the first 25 of 43 Leyland Atlantean 78-seat rear-engined double-deckers which it has on order. The buses have been used on a one-for-one replacement of trams on cross-city routes between Wadsley Bridge and Woodseats. The trams had a seating capacity of about 60. The routes have been extended at either end in order to give better service to outlying housing estates. A full description of the route changes is included on page 4.

The tram routes replaced between Wadsley Bridge and Woodseats via the city centre run alternatively via Shoreham Street and Queen's Road. the new Leyland Leopard lightweight single-deckers with M.C.W. bodywork. When the trams finally disappear, about 464 Leyland buses will be in operation. Herries Road garage, at Owlerton, has been chosen as the home for the first 25 Atlanteans. It now holds nearly 200 buses, mostly Leylands, but when the new garage now under construction at East Bank (Olive Grove Road) for 150 buses is completed, the Herries Road strength will be reduced to approximately 175. Shoreham Street depot, erected for trams in 1911, is being converted for buses and the remaining 18 Atlanteans are likely to be stationed there.

The present replacement makes another 8½ miles

A Sheffield Leyland-M.C.W. Atlantean poses on a demonstration run outside the City Hall

Although busy during the week, they are especially busy on Saturdays, passing Sheffield Wednesday football ground at Hillsborough at the northern end and the Sheffield United ground at Bramall Lane. The latter ground is also the home of the Yorkshire County Cricket Club. One of the more immediate benefits of the new large-capacity buses will be the quicker movement of the crowds after the match at the Sheffield Wednesday ground, this area being previously congested by the trams and some 80 to 100 extra buses.

New Concept of Bus Travel

Apart from the better transport facilities for the residents that the Atlantean buses will offer, their main attraction is expected to prove an economic one. The introduction of these large-capacity buses will enable the transport department to combat increases in expenditure and a decline in revenue. The low, wide, entrance platform at the front with jacknife doors controlled by the driver, an almost complete absence of noise inside the bus from the rear-mounted engine, smart interior furnishings, and comfortable smooth travel ensured by the fitting of semi-automatic gearboxes will set new standards by which the Sheffield public can judge public transport. It is anticipated that attention will be required to the siting of one or two stopping places.

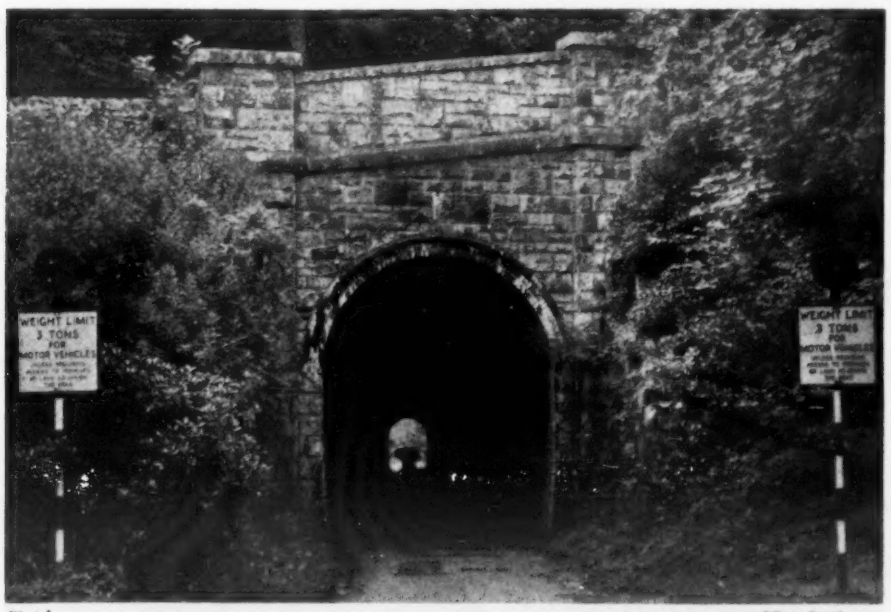
The Pneumo-Cyclic semi-automatic gearbox is an innovation for Sheffield. Already 390 of the department's drivers have been given an opportunity to gain experience in handling this gearbox and of driving the new buses on the actual service routes where they are used. The inspectors that pass them also watch carefully for smooth braking, as the Atlanteans have a powerful air-pressure brake, again new to many of the drivers.

Including the Atlantean buses, Sheffield now has well over 400 Leyland vehicles. Some of these are Leyland-M.C.W. Olympic single-deck buses of chassisless construction that have covered over 500,000 miles in service; also included are some of of tram track redundant. Only 15 miles of track remain in service for less than 100 trams. The two all-day routes remaining are Meadowhead—Sheffield Lane Top and Millhouses—Tinsley. The former is scheduled for abandonment in April next year and it is hoped that the last route will go in October, 1960, five years ahead of the original schedule. Redundant track is being left in situ and the road re-surfaced with 4 in. of tarmac to withstand heavy vehicles. Other general improvements will be incorporated including road cambers suitable for present-day traffic. Only when the last trams have disappeared, will the planning authorities be able to complete an up-to-date layout for the city centre.

Standard Model

The Atlantean buses ordered by Sheffield are standard units with 78-seat M.C.W. all-metal bodies. They are 30 ft. long by 8 ft. wide with an unladen height of 13 ft. 4 in. As already indicated, Pneumo-Cyclic semi-automatic transmission was specified and there is air braking. A feature of the bodies is the use of structural plastics for the front and rear domes. The vehicles are fitted in a standard Sheffield livery, have the normal route number, destination and route blinds at the front and a route number at the rear.

Fifteen of the buses were officially handed over to the Lord Mayor of Sheffield (Alderman A. V. Wolstenholme, J.P.) by Mr. J. S. Lees, home sales manager of Leyland Motors, Limited, and Major R. M. Cole, M.C., managing director of Metropolitan-Cammell-Weymann, Limited, on October 2. The ceremony took place at Herries Road garage in the presence of Alderman S. L. Dyson, chairman of the transport committee, Mr. R. C. Moore, general manager of the transport department, and other members of the committee. At a luncheon held to mark the occasion, Mr. Lees said that 140 Atlantean buses had been delivered to date and it was expected that 500 would be in service by the end of the year.



Photo] *[Tom Stephenson*

One of the portals of Swainsley Tunnel on the Leek and Manifold track showing dazzle from a car's headlamps; on what was basically intended as a footpath, the Staffordshire County Council admitted motor vehicles in 1951. The 12-ft. width and considerable headroom in the tunnel is due to the 2 ft. 6 in. gauge railway being designed to carry standard-gauge wagons on transporters. See editorial note, September 26

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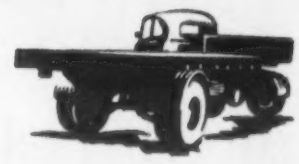

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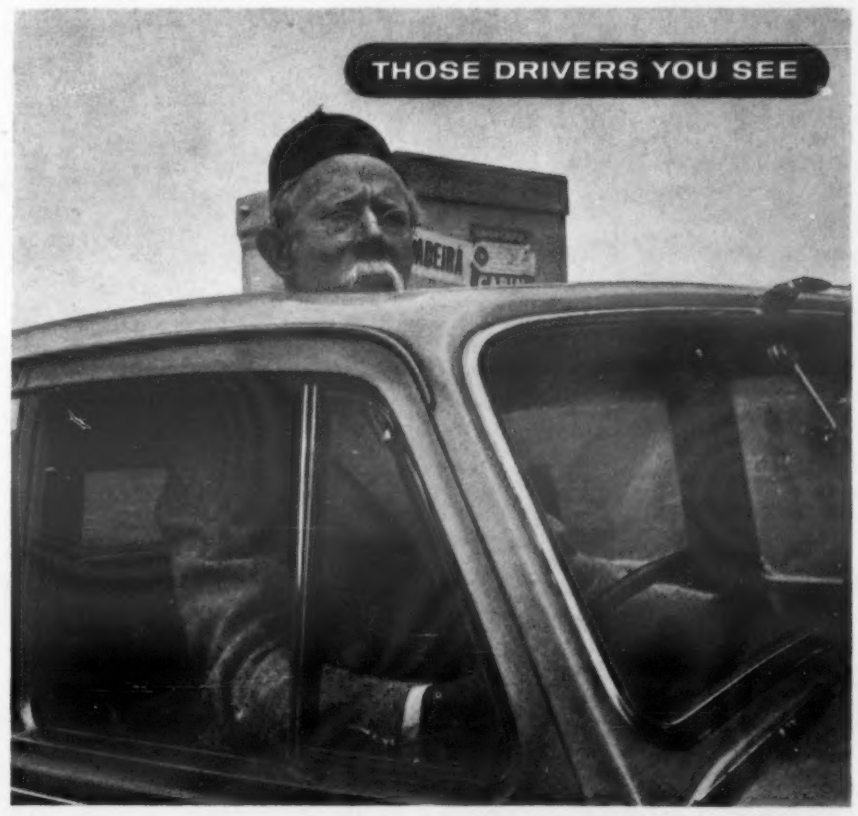

But-zis-is-ow-we-drive-in-my-country

There are lots of different kinds of driver on the road. A good many different kinds of fuel too. The safest thing to do is to stick to BP Diesel – available at Agency sites throughout Britain. With a Shell and BP Diesel Agency card your drivers can fill up with BP Diesel on credit, or cash at agency rates.

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NEWS FROM ALL QUARTERS

Rail Halts in Kent Closing

Two halts on the Southern Region, Hothfield, near Ashford, and Teston Crossing, between Wateringbury and East Farleigh, will be closed from November 2. New electric express trains between Victoria and Ramsgate will call at Chestfield and Swalecliffe halt from that date.

Parts of M. and G.N. to be Road

Portions of the former Midland and Great Northern railway formation may be purchased by Norfolk County Council in order that they may be used to improve road communications between the Midlands and parts of the Norfolk coast and the Broads. The council has decided to proceed with a scheme of this character.

Mombasa Station Renovations

At a cost of over £10,000 the East African Railways station at Mombasa has had a facelift, the first in its 26 years of existence. The main alteration is the passenger entrance which has been widened and in which new ticket, reservation and luggage counters have been built. A new canopy extends over the pavement outside the entrance hall and another links the entrance hall and the platform.

Premature Incapacitation of Railwaymen

Causes of premature retirement and death among railwaymen was the principal subject discussed at the eighth congress of the International Union of Railway Medical Services held in Lucerne recently. A paper on this subject was presented by Dr. Daenen, of the Belgian National Railways, who had made a special two-year study of the subject with the co-operation of the medical services of the affiliated railway administrations.

Faster Dublin—Belfast Trains

Faster trains between Dublin, Dundalk and Belfast marked the introduction of the winter timetable schedules on the northern section of C.I.E. on October 5. The running times for some services between Dublin, Drogheda and Dundalk will be cut by from 10 to 25 min. There will be a saving of 40 min. in the running time of the present 2.30 p.m. from Dublin Amiens Street to Belfast. But some main-line services will be cancelled or curtailed and there will be several alterations in departure and arrival times.

Private Train for His Lordship

Lord Downe of Wykeham Abbey, Scarborough, recently chartered a special train consisting of an observation coach with restaurant car facilities and two other vehicles. In the party were magistrates of the North Riding who were paying an official visit of inspection to Durham Gaol. The train left Scarborough, stopping at a siding at Sedgefield for luncheon to be served en route to Durham. On the return journey a stop was made at Northallerton where Lord Downe entertained some of his friends and it then travelled to Kirkham Abbey to be placed in a siding for dinner to be served. It then completed its journey to Scarborough.

Hertford East Electrification

The Eastern Region has published a poster diagramming the work involved in the electrification of the Hertford East—Liverpool Street line, and the progress already made.

Bus Regulations in New Zealand

A report made to the New Zealand Minister of Transport recommends, among other things, that smoking be prohibited in city and suburban buses to improve ventilation and reduce cleaning costs, improved bell systems, and the necessity to investigate improved fare collection methods.

Sheffield—Doncaster Train Services

With the introduction of the winter timetable on November 2, the Eastern Region will take the opportunity to alter the routing of some of the passenger trains between Sheffield and Doncaster. Some of the services on this route will be diverted to run to and from Sheffield Midland instead of Sheffield Victoria and the diverted trains will all be worked by diesel multiple-unit sets.

More French Car-Sleeper Expresses

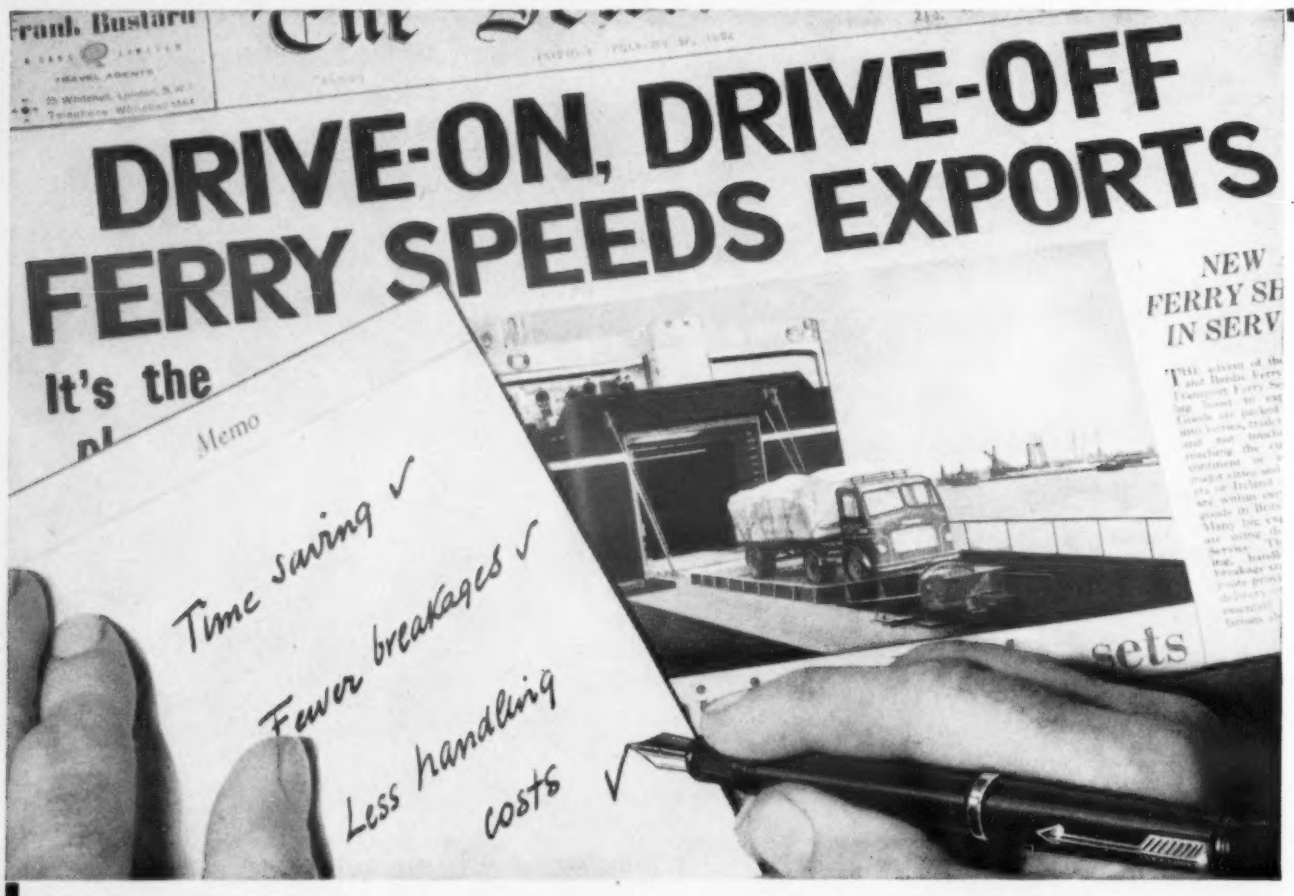
British motorists and their cars carried on the Boulogne—Lyon and Paris—Avignon car-sleeper expresses of French Railways this year showed an increase in numbers of 43 per cent over that for 1958 and more than 200 per cent over that for 1957. In view of the ever-increasing demand for accommodation on these services, their frequency will again be increased in 1960.

Removal of Trolleybus Overhead

The contract for the removal of 24,000 trolleybus overhead standards in London has been awarded to George Cohen Sons and Co., Limited, the 600 Group company which is already engaged on scrapping 1,400 London Transport trolleybuses. Some standards have already been removed. Removal of the poles will be completed in three years. The poles will be cut through just above ground level, then hydraulic pressure will be used to distort the base of the pole below ground and, by so doing, to crack the concrete surrounding it. Thus freed, the stumps can be withdrawn smoothly, without digging, without noise and without risk of damage to nearby telephone cables and other services.

Auckland Ferries

Following the opening of the Auckland Harbour Bridge, the Devonport Steam Ferry Co., Limited, sold its two car and four passenger ferry services across the Waitemata Harbour, together with seven car and eight passenger ferry boats, for £32,000 to the North Shore Transport Co., which operates extensive bus services on Auckland's North Shore. All but the Auckland—Devonport passenger service have been withdrawn and two car ferry boats, the *Ewen W. Alison* and *Alexander Alison*, have been sold to the Tasmanian Government for £12,000; a further four car ferries, *Eaglehawk, Goshawk, Mollyhawk and Sparrowhawk*, are being scrapped locally. The three boats still operating may be converted from steam to diesel.



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Export sales up, sales costs down by an overall reduction in transport costs—that's what the Transport Ferry Service means to you. The Drive-on Drive-off ferry is the modern route to the Continent. It's remarkably simple and quick, too. A lorry can now travel as easily from London to Brussels (231 miles) or Dusseldorf (332 miles) as it can from London to Glasgow (394)—and the distance is less. Ask your Transport Manager, Haulage Contractor or Shipping Agent for details, or write direct to the Transport Ferry Service.

COMMERCIAL AVIATION

B.O.A.C. and M.E.A.

IRISH SEA CAR FERRY?

THE 49 per cent shareholding of the British Overseas Airways Corporation in Middle East Airlines is to be retained. A joint statement last week by B.O.A.C. and Sheikh Najib Alamuddin, chairman and managing director of M.E.A., said that discussions in London between the Sheikh and Sir George Cribbett, deputy chairman of B.O.A.C., had resulted in agreement upon the basis of future relationships between B.O.A.C. and M.E.A. Neither the offer by Sheikh Najib Alamuddin nor the counter-offer by B.O.A.C. proved acceptable to the other party, and B.O.A.C. would retain its existing shareholding of 49 per cent in M.E.A. It was agreed that each airline could contribute materially to the success of the other, and a joint working committee was to be formed to examine all possibilities for co-ordinating the development of air services and for integration of various common services.

Flying Tiger Maintains Traffic Improvement

August air freight revenues of the Flying Tiger Line totalled $1,283,348, a gain of 11.5 per cent over the same month last year, according to Mr. John L. Higgins, vice-president. Although the lowest rate of increase for any month of the current year, the August gain was "the largest of any major air freight carrier." It was also the second record month of the year, being exceeded only by the July figure of $1,376,972. For the first eight months of the year, traffic totalled $9,824,125, for a gain of 34.6 per cent over the comparable 1958 total of $7,295,500.

B.K.S. Proposes Irish Car Ferry

Mr. Harry Spring, Irish manager of B.K.S. Air Transport, Limited, announced in Dublin on October 7 that the company had applied for permission to operate a vehicle air ferry between Liverpool and Dublin. If approved, the service would be operated with Bristol 170 Mk 32 aircraft carrying three cars. The proposal was to start the service on April 1, 1960, for a period of 10 years. The planned charges compared favourably with surface rates, said Mr. Spring. For example the charge for a Ford Prefect between Liverpool and Dublin would be £12 10s., and passenger fares would compare with current fares on the particular route. He estimated the company would carry 3,000 cars into Dublin in the first year, and this would require 10 flights daily during the peak period. The scheduled flight time would be 50 minutes. The idea had been born out of the Vauxhall new car delivery contract operated by B.K.S. between Luton and Belfast. The proposed vehicle ferry had been studied during the past six months, and from the outset Bord Failte had been closely associated with the planning of the service, and had given all possible encouragement, in the interests of the Irish tourist industry.

B.O.A.C. Success With Comets

Three days before the anniversary on October 4 of the first transatlantic pure jet commercial flight by de Havilland Comet 4, Mr. Basil Smallpeice, managing director of the British Overseas Airways Corporation, announced on his arrival at London Airport from New York that the Comet 4 was largely responsible for a 40 per cent increase in B.O.A.C. passenger traffic on all services across the Atlantic this summer. Earnings of U.S. dollars for passenger, freight and mail traffic were 32 per cent greater than last year, and for the 12 months ended September 30, amounted to $33 million, or nearly £12 million, Mr. Smallpeice said. On its eastern routes also, the Comet 4 had enabled B.O.A.C. to increase its passenger business so far this year by 22 per cent compared with the corresponding period last year. On the southern routes to Africa, traffic was only 2 per cent higher than in the year before. In total, all over the world, B.O.A.C. passenger traffic was 27 per cent up on last year. "During the first year of operation in public service on the highly competitive North Atlantic route, the Comet 4 has shown itself to be a remarkably punctual air liner." The record of the Rolls-Royce Avon engine in the Comet 4 was equally impressive. During this first year on the Atlantic, there had not been a single case of an engine failure in flight—there had been only one engine shut-down and that was due to failure of a fuel control unit. When the long range Boeing 707 and Douglas DC8 were in operation on the North Atlantic with regular nonstop westbound flights the Comet 4 would no longer be fully competitive on that route. But the impressive record of its first year in service on the Atlantic gave a foretaste of the regularity of operation B.O.A.C. would be able to offer the travelling public of the world on its eastern and southern routes.

Meteorological Conferences

The simultaneous sessions of the Meteorology Division of the International Civil Aviation Organisation and the Commission for Aeronautical Meteorology of the World Meteorological Organisation in Montreal agreed to the simplification and streamlining of existing procedures to make it possible to handle the expanding demands for meteorological information as a result of the continuing increase in air operations. Attention was also paid to the problems of forecasting; among other things, recommendations were made to improve aerodrome forecasts and guidance was given on the accuracy needed for temperature forecasts at aerodromes and at high levels for jet use. Procedures were also agreed upon to allow the use at one end of a route of a forecast issued at the other end, so that the area for which forecasting offices are responsible can be limited and duplication in forecasting reduced. For long distance flights, there is a pressing need for weather charts used at briefing to cover the weather situation along the route as far as the next aerodrome at which a new briefing would be available. The charts do not have to be produced entirely at the take-off point, but the remote parts may come from another meteorological centre in coded form or by facsimile transmission. Member states of I.C.A.O. and W.M.O. were invited to pursue or to initiate studies of the use of automatic data transfer techniques (such as tele-typewriter or facsimile reproduction) to provide information rapidly to aircraft in flight, and thereby to reduce some of the workload of the pilot and his crew. The meeting recognised that there was an operational requirement for the distribution of runway visual range information both to aircraft in flight and to aerodrome and air traffic control units when visibility is low. As jet aircraft are particularly sensitive to the temperature of the air along the runway on takeoff, there is a need for accurate temperature measurements.

SERVICE TO THE BUS INDUSTRY

Mr. R. I. H. LONGMAN, M.Inst.T.

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From September 30 Mr. Raymond Ilfred Henry Longman has relinquished his membership of the Tilling Group Management Board after an association with the bus industry extending over 40 years. Now 65, he is retaining his position of chairman and managing director of Wilts and Dorset Motor Services, Limited, the company with which he was first associated and of which he became secretary in 1924. He was elected to the board in March, 1929; during 1930-31 his company, which had been originated by Messrs. Cannon and Mackenzie of Southdown in association with local interests, became a Tilling and British company with Southern Railway shareholding. Until 1942 the undertaking had a tripartite managerial arrangement with secretary and director, traffic manager, and garage manager reporting to the board, but in May of that year Mr. Longman was appointed general manager; in September the company was transferred to the Tilling Group. In the following month he joined the executive staff of Thomas Tilling, Limited, and in 1948, upon the transfer of Tilling bus interests to the British Transport Commission, he became a member of the Tilling Group Management Board of the B.T.C. He has been chairman and managing director of Wilts and Dorset Motor Services, Limited, Hants and Dorset Motor Services, Limited, and Southern Vectis Omnibus Co., Limited, and a director of the Brighton, Hove and District, Durham District, Eastern National, Tilling's Transport (B.T.C.), United Automobile and United Counties companies in the Tilling group. In companies joint with B.E.T. interests he has held directorships in London Coastal Coaches, Samuelson New Transport, A. Timpson and Sons and Bourne and Balmer. His services to the industry have included vice-chairmanship of the Public Transport Association, 1949-51; he was chairman of the Conference of Omnibus Companies, 1958-59, and is currently chairman of the National Council for the Omnibus Industry. He has also been a member of the Road Operators' Safety Council. Mr. Longman is a member of the Institute of Transport. His specialised knowledge of the art of estate and property management has frequently been beneficial to the companies he has served.

IRISH BRANCH LINES

More Closures Proposed

C.I.E. POLICY

A SYSTEMATIC review of all its rail services has been undertaken by Coras Iompair Eireann to ensure that they are operated efficiently and economically. The policy of dieselisation has been continued where the traffic was sufficient. A vigorous selling drive has been launched to ensure that the maximum traffic is secured but in the case of branch lines it is evident that in many cases, even with increased traffic, the railway, whether by steam or diesel, is no longer the most economic or efficient method of bringing traffic to the main lines. Road services can perform the work of feeding the main lines much more effectively. As through rates are maintained for regular traffic the change from rail to road services means no more than that branch lines are operated by road vehicles and where this policy has been adopted the traffic has been retained for the main railway system and a better service has been provided for the area previously served by the branch.

In accordance with this policy it has been decided to cease working the following railway branches on January 1, 1960, and to provide the services thereafter by road: Inny Junction—Cavan (C.I.E.); Dundalk—Clones (ex G.N.R.B.); Cavan—Clones—Monaghan (ex G.N.R.B.); Inniskeen—Carrickmacross (ex G.N.R.B.); Headford Junction—Kenmare (C.I.E.); and Claremorris—Ballinrobe (C.I.E.). Before coming to this decision a careful examination was made of every aspect of the working of these lines and every possibility of improving their efficiency was explored. Not only do these services not pay as railways but the undertaking sees no prospect at any time in the foreseeable future that the situation will improve sufficiently. It is clear that the only effective change which can be made is to change the method of operation from rail to road.

Poor Traffic

In 1947 passenger services on the Inny Junction—Cavan branch and the Inniskeen—Carrickmacross section were replaced by buses and last year the working loss on these lines amounted to £84,445. The economics of these services were adversely affected by the decision to withdraw the complementary services in the Six Counties. Railway working on the Headford Junction—Kenmare branch showed a loss of £18,071 and on the Claremorris—Ballinrobe branch the loss was £11,090. At present a regular weekday service of two trains in each direction is operated on each of these branches. The average daily number of passengers is very small and on one train on the Ballinrobe branch the average is only one passenger a day.

The change of methods of working these feeder services by the more appropriate road services will make a substantial contribution towards the task of providing a self-supporting public transport service; the Transport Act, 1958, has laid a duty on C.I.E. to become financially self-supporting in five years. In accordance with the policy already followed adequate road services will be provided to convey merchandise and livestock to and from main lines and for regular supporters of the service a system will be continued of through rates with stations beyond the railheads, based on the existing station to station rates. As has been the case with previous closures every trader in these areas will be visited by senior representatives of C.I.E. to ensure that the new services are designed to meet local requirements effectively. The district superintendents visited the areas concerned last week to inform the staffs personally of the proposed changes and the company will, as before, in consultation with the unions endeavour to find alternative employment for these employees. Where this is not possible, they will, where they qualify, be retired under the terms of the 1958 Transport legislation.

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PROGRESS AT KINGSFERRY

Navigation Span of Bridge

THE most delicate operation in the building of the new Kingsferry road and rail bridge between the Isle of Sheppey and the Kent mainland was carried out on Friday and Saturday October 2 and 3 by Dorman Long (Bridge and Engineering), Limited. There are three steel spans with reinforced decking on both the Kent and Sheppey sides with a navigation opening of 120 ft. which is spanned by a steel lifting span permitting the passage of ships. The overall length of the steel bridge is 650 ft. The operation now begun is the transfer of the navigation span from its temporary position on the Kent approach to its permanent position across the navigation channel. During this operation the weight of the span is approximately 260 tons.

The method adopted to bring the span into its final position involved rolling the span forward over the full length of the Kent approach until its nose reached the Kent tower. At this point the weight of the nose of the span was transferred to sets of rollers mounted on the Kent pier. When this was completed the nose of the span was again moved forward across the navigation channel until it neared the point of balance on the rollers. At this point two tackles each of 60 tons capacity suspended from the top of the Sheppey tower on the other side of the navigation channel, were connected to the nose of the span with suitable restraining tackle to control forward movement. The span was then again moved forward with its weight carried between the 60-ton tackles and the Kent pier rollers until the nose of the span reached the Sheppey pier.

The ends of the span were then connected to the balancing counter weights suspended in the towers thus securing the span across the navigation channel. The next step is the raising of the span 75 ft. to the tops of the piers where completion of the decking will take place, leaving the channel clear for navigation. The consulting engineers for the Kingsferry Bridge are Messrs. Mott, Hay and Anderson, and the main contractor is John Howard and Co., Limited.

The price of all 12 types of English Electric mild-steel electrodes is reduced by 5 per cent.

The Benjamin Electric, Limited, announces a substantial reduction in the price of Duoflux flood-lighting fittings covering the complete range for tungsten and mercury lamps and fluorescent bulbs. The percentage reduction varies from approximately 7 per cent for the smallest models to nearly 25 per cent for the large models.

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MANCHESTER AND BURY LINE

New Electric Trains

NOW being delivered are 26 two-car electric trains for the Manchester and Bury 1,200-volt third rail service of British Railways. They are being built at the London Midland Region Wolverton Works and comprise a motor open second brake and a driving trailer composite car. The set is designed to carry 16 first-class and 162 second-class passengers. There is a "ladies only" compartment in each set. A driving cab is provided at each end of the two-car unit, with a luggage and guard's compartment at the trailing end of the motor car. Each vehicle is 64 ft. 0⅛ in. long over body ends and 9 ft. wide over body panels, with the body side profile the same as the standard British Railways carriages. The 34 doors in each set facilitate rapid passenger movement at stations.

Constructional Details

The driving cab end on each vehicle is to an entirely new profile for electric stock, the aim being to give the motorman better vision and to improve the exterior appearance of the train. The vehicle underframes are of welded mild-steel construction to standard British Railways design, with a length of 63 ft. 5 in. over headstocks. The outer ends of each two-car set are fitted with telescopic side buffers and drophead automatic couplers. The intermediate ends have fixed automatic couplers without side buffers.

Double bolster bogies with knife-edge suspension are used, the motor bogies being built up from steel plates and rolled steel section, and the trailer bogies having main members of pressed steel. The principal members of both bogies are riveted. The bogies are fitted with fully equalised and compensated brake gear for the self-lapping electro-pneumatic brakes provided on each vehicle. Roller-bearing axleboxes, grease lubricated, are used throughout.

Bodies

The coach bodies are of welded-steel construction insulated against sound and changes in external temperature by insulating material which is packed in the cavities between the outer steel panels and the interior finishing of the sides, ends and roof. The double floor consists of a blockboard panel covered with ¼-in. linoleum for the upper surface, with corrugated aluminium panels on the underframe, the space between the two being filled with insulating material. The windows are rubber glazed in light alloy frames; the driver's windows and drop lights are of toughened glass. The doors are of light alloy construction.

The master controller, brake controller and instruments for the motorman's use have been conveniently arranged in the form of a desk across the body end, below the front cab window, giving a neat appearance to the driving compartment. The motorman's seat is adjustable in height and position and a balanced drop light is provided on the side panel. The interior finish of the cab comprises plastics-faced wall panels and a moulded polyester ceiling. The interior finish for the passenger compartments is a blend of timber and plastics-faced wall panelling with light alloy luggage racks; the latter is fitted on the cross partitions where convenient and on the body sides above the windows between doorways in the case of the open vehicles. Double spring type seating is provided with a pleasing moquette upholstery. The ceiling light fittings (there are shoulder lights in the first-class compartments) have been chosen to tone with the general finish and appearance of the cars.

One of the new electric trains for the Manchester and Bury line showing the much-improved end appearance

Electrical

Spring-loaded collector shoes are fitted on each side of the leading bogie of the motor car and on both bogies of the driving trailer car of each unit, giving a shoe span of 112 ft., all shoes of a unit being interconnected by a busline. There is no 1,200-volt connection between coupled units, but busline receptacles have been installed to facilitate movements at the maintenance depot in conjunction with an overhead trolley. The power busline running through each unit supplies the traction motor and h.t. auxiliary circuits, the whole of the h.t. system being insulated for 1,500 volts with standard 1,500-volt equipment modified where necessary for 1,200-volt operation. All h.t. equipment will be underframe mounted.

The English Electric electrical equipments are constructed to operate on the 1,200-volt d.c. protected third-rail system already in use on the Manchester—Bury line. This system (the only one of its kind in the country) is to be retained because conversion to the overhead system of electrification, involving considerable engineering work, would defer for some years the provision of new rolling stock.

There are four traction motors to a unit, each having a continuous weak field rating of 119 h.p. at 550 volts, 180 amps. and 1,168 r.p.m., with a gear ratio of 63 to 17 and 40 in. diameter wheels. The motors are axle-hung with sleeve-type suspension bearings; they are self-ventilated with air inlet screens. The two motors of each bogie are permanently connected in series with series-parallel Simplex control of the two pairs. There is an inching notch for manoeuvring a set for coupling up. The control equipment is electro-pneumatic.

Supplies for train heating are taken from the power busline through h.t. contactors on each coach, the heater negatives on the driving trailer being insulated and returned to the earthed negative busbar on the motor car via a semi-permanent coupler. Tubular heaters of 750 watts 750 volts rating connected in series pairs provide 24.5-kW heating in the passenger compartment and 5 kW for crew heating per unit at 1,200 volts. Train control of passenger heat is available from each guard's van, with a thermostat situated in the leading saloon of the motor car controlling each unit. Low-tension supplies are available at 110 volts d.c. from a 4.5-kW totally enclosed motor generator and 80 amp.-hr. emergency Nife battery. The motor generator output voltage and current are controlled by a carbon pile regulator of the decompounding type.

Lighting

Passenger lighting at 110 volts d.c. is on two circuits per unit, the main circuit of 1,600 watts being supplied from the motor generator side of a reverse-current contactor and the remaining 480 watts from the battery side. This affords modest illumination in the event of a supply failure. It is possible to connect the passenger lighting circuits to a 110-volt depot supply for coach cleaning. The auxiliary lighting circuits are fed from the battery and include twin tail lamps, route indicators and two-way guard's lighting. One lamp from each of the passenger lighting circuits completes the guard's van lighting.

Compressed air for the brakes and control is provided by a 25 cu. ft. per minute compressor, the motor of which is rated for 1,500-volt operation with a field tapping for 1,200 volts. A system of telephone communication between driver and guard is provided in addition to bell communication and provision is made for automatic warning control to be installed at a later date. For normal operations trains will be made up of two two-car sets, i.e. four coaches, but for off-peak periods the trains will operate as two-car sets.

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Forthcoming Events

October 12.—Institute of Transport. Presidential address by Mr. R. G. Grout. At 66 Portland Place, W.1. 5.45 for 6.15 p.m.

Institute of Road Transport Engineers (West Regional). Paper by Mr. E. Kellett, "The Design of Radial-Flow Turbochargers and their Application to Road Transport." At Liverpool Architectural Society's Rooms, Blucoat Chambers, School Lane, Liverpool, 1. 7.30 p.m.

Institution of Electrical Engineers. Discussion opened by the president, "Is the Present Pace of Electrical Progress Good for the Community?" At Savoy Place, W.C.2. 5.30 p.m.

October 12-16.—International Air Transport Association. Annual general meeting. In Tokyo.

October 13.—Institute of Transport (Yorkshire). Paper by Mr. W. H. Vine, "The Shop Front of Transport." At Station Hotel, York. 6.30 p.m.

Permanent Way Institution (York). Paper by Mr. E. J. C. Atkinson, "The Tilley Lamp." At Railway Institute, York. 6.45 p.m.

Railway Correspondence and Travel Society (East Midlands). Paper by Mr. C. H. Attenborough, "Some Aspects of Locomotive Fuel Usage." At N.C.S. Guild Room, Toll Street, Nottingham. 7.30 p.m.

Institute of Road Transport Engineers (North Regional). Paper by Mr. L. P. F. Drake "Research and Test Procedure in connection with Automotive Fuels." At Commercial Hotel, Accrington. 7.30 p.m.

Institution of Civil Engineers. Papers on "Asphalt-surfaced and Concrete Pavements for Airports." At Great George Street, S.W.1. 5.30 p.m.

October 14.—Institute of Transport (Southern). Paper by Mr. A. T. Hills, "Modern Motorways in the United Kingdom." At Harbour Board Offices, Southampton. 5.45 p.m.

Institution of Railway Signal Engineers. Paper by Mr. W. M. Sweetenham "Signalling Equipment on 50 c/s Electrified Lines." At Institution of Electrical Engineers, Savoy Place, W.C.2. 6 p.m.

British Institution of Radio Engineers. Paper by Mr. E. Wolfendale. "The Use of Transistors in Communication and Control." At London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. 6.30 p.m.

Institute of Road Transport Engineers (Southern). Paper by Mr. B. W. Millington, "Problems in Developing the High-Speed Diesel Engine." At Wooden Bridge Hotel, Guildford, Surrey. 7.30 p.m.

Institute of Road Transport Engineers (South Eastern). Paper by Dr. H. J. Starks, "Research on the Testing and Performance of Commercial Vehicle Brakes." At Wig and Gown Hotel, Maidstone. 7.30 p.m.

Institution of Mechanical Engineers. Paper by Mr. H. Desmond Carter, "The Engineer, Life and Diesel Engines." At 1 Birdcage Walk, S.W.1. 6 p.m.

Peterborough Railway Discussion Group. Paper by Mr. C. W. Evans, "Railway Trade Unions approach to Modernisation." At Peterborough Technical College. 6.45 p.m.

October 15.—Institute of Transport (Northern Ireland). Paper by Mr. N. W. Rolfe, "Road Passenger Transport in the United States and Canada." At 21 Linen Hall Street, Belfast. 6 p.m.

Diesel Engineers and Users' Association. Annual general meeting and informal discussion on Users' problems. At Institute of Marine Engineers, 76 Mark Lane, E.C.3. 2 p.m.

October 16.—Institute of Transport (Swindon Group). Paper by Mr. A. F. Hares, "Behind the Port Scene." 7.15 p.m.

Institute of Transport (Tees-side). Paper by Mr. D. S. Deacon, "Road Passenger Transport Today and Tomorrow." At Cleveland Scientific and Technical Institution, Middlesbrough. 6.30 p.m.

October 17.—Permanent Way Institution. Northern conversazione. At York.

October 26-28.—Road Haulage Association. Annual conference. At Bournemouth.

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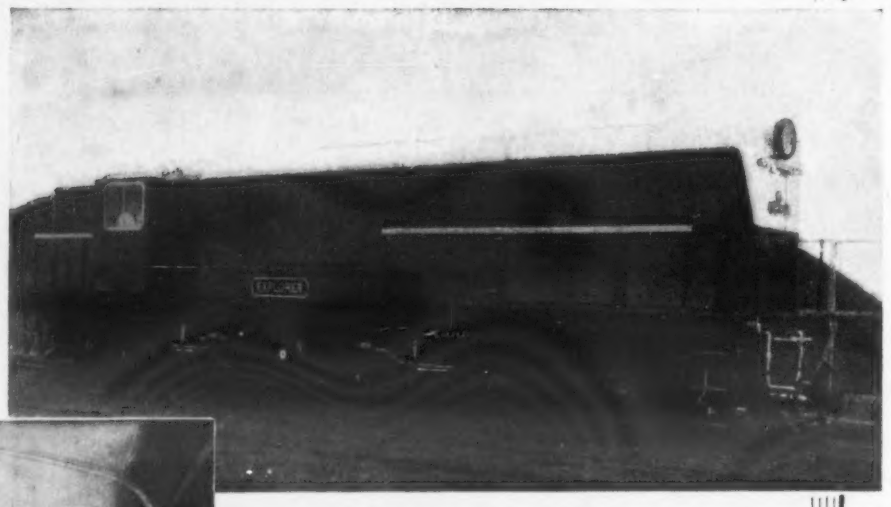

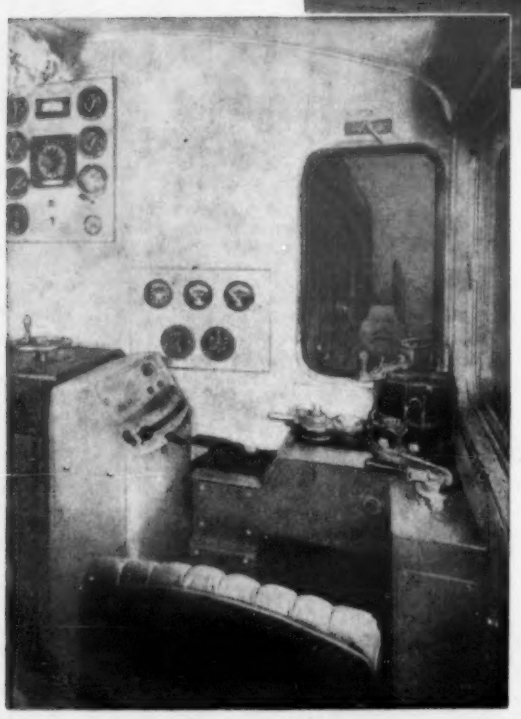

This 1100-H.P. mixed traffic Diesel-Electric Locomotive is designed for operating on the lighter type of railway in overseas territories where freight forms a large proportion of the total traffic.

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This versatile role demands a versatile braking system and

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VACUUM/AIR BRAKE EQUIPMENT

is fitted, which includes a straight air brake, controlled by a self-lapping brake valve, for use when running light or hauling unbraked stock, and a vacuum-controlled air brake system for coupling to a vacuum braked train; an automatic air brake can also be fitted for use with air braked trains.
The Westinghouse equipment includes all the brake control gear, compressors, and exhausters.

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EIGHTY YEARS OF AIR AND VACUUM BRAKE EXPERIENCE

DIESEL TRAINS ON BEDFORD SERVICE

Full Timetable Next January

DESCRIPTION OF ROLLING STOCK

OPERATION of multiple-unit diesel trains on the St. Pancras—Bedford line of the London Midland Region commenced on September 28, when the first sets replacing steam working entered service. For the present, eight off-peak trains will be diesels. With a mixed steam and diesel service it is not possible to take advantage of the fast acceleration and deceleration characteristics of the new trains and the diesels will, therefore, have to run at the same times and at the same speeds as the steam trains. But from January 4, 1960, a new timetable based on all-diesel working will be introduced. Trains will then run hourly from Bedford and half-hourly from Luton to St. Pancras throughout the day, with many additional trains at peak travel periods.

The considerable improvement in the service from January 4 is shown by the fact that Bedford will have 44 instead of 31 trains other than main-line expresses to and from St. Pancras, Luton 88 instead of 50, St. Albans 100 instead of 79 and Elstree 45 instead of 30. By semi-fast diesel train the running time from St. Pancras to Bedford will be 70 min., to Luton 43 min., to St. Albans 28 min. and to Elstree 20 min. Trains stopping at all stations will take a little longer.

Mr. David Blee, general manager, London Midland Region, replies to the official welcoming speech by the Mayor of Bedford, Alderman C. N. Barrott, after the inaugural train had arrived at Bedford from St. Pancras (Alderman Barrott is partly obscured by Mr. Blee). Also seen, left to right, are: Alderman Mrs. S. E. Dunham, Mayor of St. Albans; Councillor C. F. Putterill, chairman, Harpenden U.D.C.; Alderman Louis Palmer, Mayor of Dunstable; Councillor E. H. Nimmo, chairman, Watford R.D.C.; Mr. R. L. E. Lawrence, divisional traffic manager, London; and Alderman Mrs. B. Andrews, Mayor of Luton

Train Formation

An outline description of the new trains and of the engineering and permanent way work required in connection with dieselisation appeared in our June 13 issue; further technical details of the rolling stock are now to hand. The trains have been built as four-car units, capable of being run as eight- or 12-car sets, by coupling two or three sets together. Each four-car set consists of a motor brake open second, trailer lavatory second, trailer second and a motor brake open second. Each motor car is powered by two 238-b.h.p. Rolls-Royce engines, giving a total horsepower for the four-car set of 952 with a power-weight ratio of 7 to 1. The estimated weight of the motor car is 39 tons and the trailer cars 28¼ or 29½ tons each. A diagram of the seating layout and principal dimensions of a four-car set appeared in the article referred to above. The trains have been built at Derby works. Thirty four-car sets are being provided, all accommodation being second class.

The bogie frames are of riveted construction and the individual members are part fabricated. The bogie wheelbase is 8 ft. 6 in. The centre castings and side friction castings are carried on resilient rubber mountings, the bolsters being fitted with Armstrong hydraulic dampers. Timken tapered roller bearings are fitted throughout. The underframe on this stock is of welded construction, and is 63 ft. 5 in. long over headstocks, 46 ft. 6 in. over bogie centres. The main longitudinals are 10¾ in. deep, of welded angle and plate construction.

Brakes

A quick-release vacuum brake is provided, an exhauster being mechanically driven from each engine. A feed valve is interposed between the driver's control and the exhausters which enables the brake release to be entirely independent of the exhauster speed. A lap position incorporated in the driver's control isolates the train pipe from the exhauster pipe, so enabling any desired degree of braking to be maintained.

The body and roof framing are of conventional B.R. design in top hat section, the bodyside and roof panelling being 16 s.w.g. steel sheet. The driving compartment canopies are of moulded polyester glass laminate and incorporate the route indicators. The floor consists of blockboard ¾ in. thick with ¼ in. thick asbestos sheet and a 16-s.w.g. light alloy panel on the underside. The interior of the bodyside, body ends and roof space is filled with glass fibre. The bodyside lights are fixed in extruded alloy section frames, secured from the inside by studs welded to the body panels. The driving end lights are also fixed in extruded alloy frames secured from the outside and riveted to the body panels. The interior finish is of plastics panelling in yellow, charcoal and buff. Ceiling panels are ivory plastics and the car floors are covered with linoleum, gunmetal marble finished.

Accommodation is provided for 352 second-class passengers in each four-car unit. The seats are non-reversible with steel tubular framing, the majority being of the back-to-back type. Seat covering is of cut moquette with a gay horizontal striped pattern, tan, yellow and black. The seat ends are enclosed with a solid timber frame faced with a semi-matt green plastics panel, the centre panel and arm rests being covered with uncut moquette in grey charcoal with black dots. Heating is provided by means of two oil-burning combustion heaters which are mounted on the underframe. Fresh air is drawn in, passed through an oil filter, heated and passed through a system of ducts situated under the floor with outlets into the car under pressure by means of an independently-powered air fan which is part of the heater.

Control Circuit

The Rolls-Royce eight-cylinder diesel engines drive through twin-disc torque convertors up to a speed of approximately 46 m.p.h. when the drive automatically changes to direct coupling. Maximum speed is 70 m.p.h. The final drive unit on the axle also incorporates the reversing gear. The control system is electro-pneumatically operated, engine-running indicator circuits being provided for 12 engines (six power units). The fundamental principles of the system are:

(a) Failure of one engine does not involve complete stoppage of the train.
(b) The addition of extra power units does not entail any extra skill or attention on the part of the driver.
(c) The units can work in multiple with cars fitted with conventional four-speed gearboxes.

The mutual independence of the engines is obtained by the presence of a freewheel in the transmission system. Ease of control is promoted by the following features:

(a) Indication of the necessity to change gear, when coupled to cars with gearboxes, is given to the driver by a suitably calibrated speedometer.
(b) The starter circuit is automatically disconnected when an engine is running.
(c) In the event of a failure to either the cooling water or lubricating oil system, the engine will be stopped automatically.

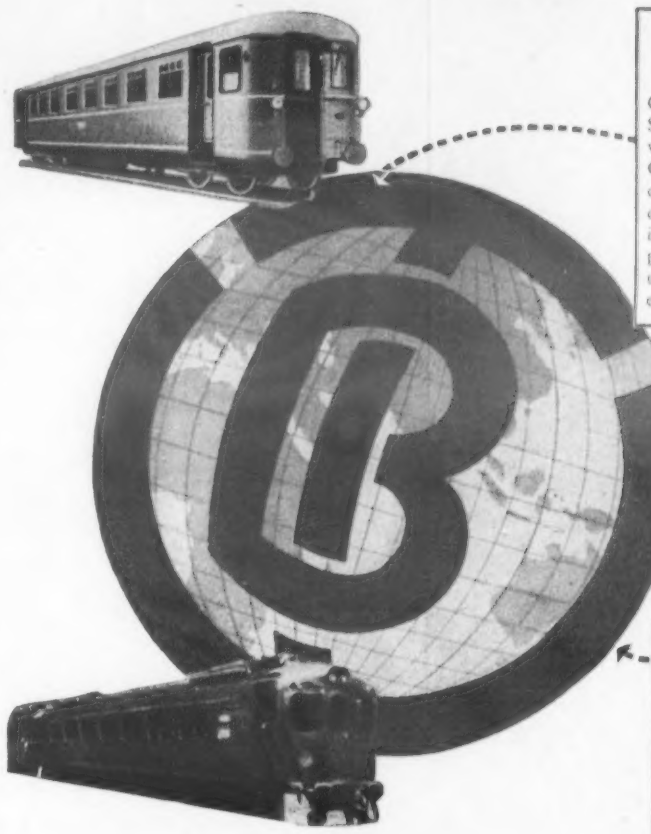
The sequence of starting-up operations commences at a key-operated main battery switch on the driver's control desk. It connects the battery to the train control circuit and thus makes a supply available to the control desk. A gear and reverser controller, which is also the drive control for torque-convertor cars, is fitted to the control desk at the right-hand side. The reverser controller has a removable handle and this must be inserted and "forward" or "reverse" selected before any controls become operative. This controller is also mechanically interlocked with the gear control. The gear control cannot be moved from neutral until a direction has been selected, conversely when a gear has been selected the reverser control cannot be moved.

The engine speed controller with deadman's handle is a five-position controller and controls engine speed over the range 400-1,880 r.p.m. It is fitted to the left-hand side of the control desk.

(*Continued on page* 14)

Inaugural train sets back from the down fast line into up platform at Bedford Midland Road. (A crossover, to be installed, will obviate this shunt when the full timetable is introduced)

B.U.T. RAIL TRACTION DIESELS
used universally



FROM THE ARCTIC CIRCLE
Operating between Sulitjelma and Finneid, within the Arctic Circle, in temperatures down to —30°F., this diesel stock was built in Norway and incorporates B.U.T. power units and transmission equipment.

TO DOWN UNDER
B.U.T.-powered railcars are operated by the Western Australian Government Railways and the Queensland Railways, in ambient temperatures of up to 120°F.

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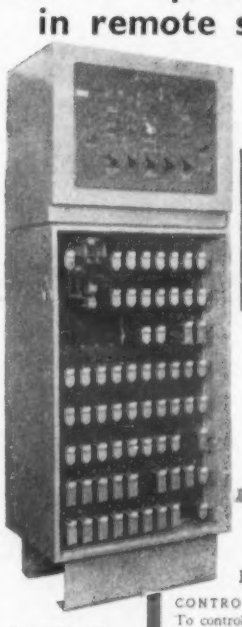

View of Type 'S' Control panel for remotely operating a station on a single line of railway. Front cover has been removed to show relays.

WITH THE
MV-GRS Type S remote control system

The Type S remote control system, developed by MV-GRS, provides a swift, simple and economical means of remote control and indication, using a minimum of apparatus. Designed specifically for remote control of a single location this 'synchronous stepping' code system is based on a unique principle employing the free swings of two mechanical oscillators—one at each end of the circuit—to create the steps of the code.

METHOD OF OPERATION

CONTROL action comp'eted in 1 second
To control a field device, a switch on the control machine is moved to set up the appropriate code in the control office application unit. This code is transferred to the stepper unit and transmitted over the line circuit to the field apparatus. The field stepper unit on receiving the code applies it to the field application unit, which responds to the particular code message and controls the function relay operating the field device. This entire control operation takes approximately one second to complete.

INDICATION given in 2 seconds
When a field device changes position, it notifies the field application unit which automatically starts the stepper unit transmitting the appropriate code back to the control office, where an indication light on the control panel diagram shows the new position of the field device. Indication is completed in about two seconds.

SIMPLEX AND DUPLEX SYSTEMS
Type S remote control system installations of many types can be furnished to meet specific traffic requirements, from a Simplex 7-step system with a capacity of 32 control codes, to a Duplex 11-step system providing a maximum of 1,024 control codes.

Already this MV-GRS system has proved highly successful in many installations, and over transmission distances of up to 200 miles. As in all coded systems, codes are contained in a series of steps, or intervals. However, with the Type S system the use of mechanical oscillators to create the steps ensures that codes are of uniform length and that stepping speeds are always constant irrespective of normal voltage variations. Conventional signal lines can be employed and provision made for voice or telegraphic communication over the same wires if desired.

Each installation has its own individual problems in the solution of which MV-GRS Engineers are always ready to co-operate and make suitable suggestions.

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OFFICIAL NOTICES

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APPLICATIONS are invited for the above pensionable appointment at a salary within Grade A.P.T.6 (£664/£774 per annum).

Applicants must have had experience in the control of a transport fleet and a recognised qualification in automobile engineering and/or transport administration will be an advantage.

Detailed application, quoting "Vacancy No. 293," giving the names of two referees, should reach the General Manager, Manchester Group, North Western Gas Board, Town Hall, Manchester, 2, within 14 days.

COUNTY BOROUGH OF WIGAN

TRANSPORT DEPARTMENT

OFFERS are invited for the purchase and removal of a number of Lowbridge Double-Deck Omnibuses. Full details of the vehicles may be obtained from the General Manager, Transport Department, Market Place, Wigan.

Offers should be returned to the undersigned, in a plain sealed envelope endorsed "Offers—Transport Vehicles," not later than Monday, October 26, 1959.

Municipal Buildings,
Library Street, Wigan.

ALLAN ROYLE,
Town Clerk.

NEW DIESEL FOR I.H. ARTICULATOR

Optional Belt-Driven Tandem Axle

TWO innovations in a new trunk-haulage articulated tractor recently announced by International Harvester Export Company, Chicago, are an optional International-built diesel engine of 375 b.h.p., the first own-made diesel the company has ever offered in its road vehicles, and a variety of tandem-axle arrangements having a proprietary form of V-belt drive between the wheels of the driven and (normally) non-driven axle. Designated DCOF 405, the tractor is offered with a wide range of wheelbase lengths and axle ratios, while the tandem axle arrangements can embody either pusher or trailing extra axles.

Typical of the series is the 160-in. wheelbase six-wheel tractor designed for 127,400 lb. gross combination weight, the maximum allowable under new American regulations. As well as a normal forward-control cab, two types of sleeper cab are offered having bumper-to-back-of-cab lengths of 72 or 80 in.; even the longer permits the use of two 40-ft. trailers ("doubles" in the U.S.A.) within the prescribed 98 ft. overall length. The forward-tilting cabs are hydraulically operated.

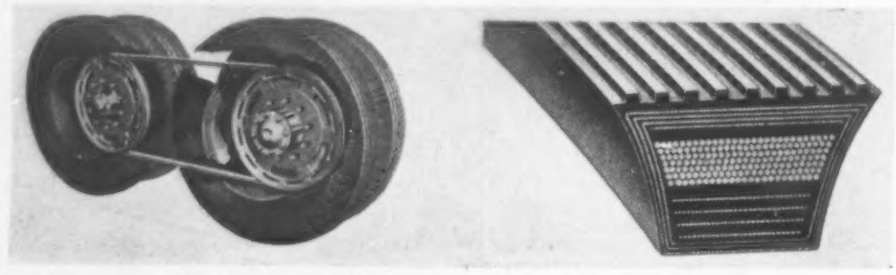
New 375-h.p. I.H. turbocharged diesel under hydraulic tilt-cab of International trunk-haulage tractor

375-h.p. Diesel

The standard engine is a Cummins diesel of 335 h.p., which drives through a 12-speed gearbox. The new optional International diesel engine is a six-cylinder direct-injection four-stroke unit of 817 cu. in. displacement which, as we recorded in our issue of June 20, is already fitted by the company to two of its heavy-duty dumpers. In the road-vehicle application it is turbocharged and is set to produce a maximum horsepower of 375 at 2,100 r.p.m. and a maximum torque of 1,038 lb./ft. at 1,450 r.p.m. Design features include four valves per cylinder and a fuel-injection system comprising an I.H. metering pump and individual camshaft-actuated multi-hole injectors.

The various tandem-axle arrangements can embody Hendrickson, Page or Maremont systems, all of which are classed as "lightweight," while further weight reductions from standard are possible by specifying optional aluminium chassis-frame members.

The optional V-belt drive for tandem axles is a development of the Gates Rubber Company, Denver, Colorado, designed to provide the advantage of increased traction without the weight of a second driving axle. The system makes use of pulleys designed for fitting between twin wheels of either cast-steel spoke or disc type and an endless V-belt of special design protected by U.S. patents.



Arrangement of pulleys of Gates V-belt tandem-axle drive and, right, section through the patented V-belt

BEDFORD DIESEL TRAINS

(*Continued from page* 13)

When the handle is released, the engines are returned to idling speed, the gear to neutral, and after a 5-sec. delay the brakes are applied to bring the train to a stop.

Each engine is provided with an automatic fire extinguishing system which, when it operates, will stop the engine affected and at the same time ring the fire alarm bells in driving cabs and brake compartments. The lighting supply is from a 24-volt battery system, the supply being stepped up to 240 volts 1,000 cycles a.c. by means of transistor oscillators. The 4-ft. 40-watt fluorescent lamps are arranged in a single line down the centre of the ceiling of each vehicle. The current for both lighting and controls is supplied from a 440 amp.-hr. lead-acid battery of B.R. manufacture, carried on the underframe. The power car batteries are charged from an engine-driven a.c. generator and those on the trailer cars from an axle-driven generator.

Inauguration Day

To inaugurate the new diesel service a special eight-car train carrying local dignitaries, Press and railway officers left St. Pancras on September 28 at 10.55 a.m. for St. Albans, Harpenden, Luton and Bedford. The Mayor of Bedford, Alderman C. N. Barrott, welcomed the general manager of the London Midland Region, Mr. David Blee, as the train drew into Bedford Midland Road Station. He referred to the committee which had been formed among the communities along the line to see that Bedford and the other cities and towns en route were not overlooked in the march of modernisation and caused some polite eyebrow raising when he suggested that it would be a good thing for Bedford people if one of the town's stations were closed. He was referring to Bedford St. Johns, on the Bletchley—Cambridge line; he wanted the service concentrated on Midland Road. (This would necessitate a reversal for through trains.—Editor.)

Mr. Blee, responding, said that the decision to introduce diesel trains to Bedford now showed how sensitive British Railways was to local representations of that sort. Of course, it was not just a question of purchasing the rolling stock and training drivers; they had had to resignal lines previously used only by freight trains and new platforms had had to be provided at several stations on what became the local passenger line. He promised that the London Midland would be ready to adapt the service if the demand was there. The scheme has cost about £2½ million.

L.M. ELECTRIFICATION

Train Alterations

TO enable the civil engineer to speed-up modernisation and electrification of the London Midland main line between Euston and Crewe, as recently foreshadowed in the railway modernisation plan reappraisal, important alterations to train services are to take place. From November 2 all L.M. express services between London Euston, Birmingham New Street and Wolverhampton High Level will be suspended; but an augmented service (about hourly all day) will be given between London Paddington, Birmingham Snow Hill and Wolverhampton Low Level. Coventry will, therefore, no longer be served direct by express trains from Euston, but certain trains on the main line will call additionally at Rugby and from there passengers will travel by diesel train to Coventry.

To give further help, certain Manchester trains will also be diverted from the Euston route and will run instead to and from St. Pancras; this diversion will start in part on October 24. The present sleeping-car services between Euston and Manchester London Road will continue to run between those points but will leave a little earlier. On Sundays the civil engineer requires complete possession of the Trent Valley line between Stafford and Rugby. All main-line trains will have to be diverted via Bescot, Stechford and Coventry. This will mean additional running time of 20 to 40 min. and this Sunday diversion will be in force for about two years.

Inevitably the incidence of engineering work will mean all weekday expresses between Euston, Manchester, Liverpool and the North West will have journey times increased by up to 20 min. The times of Anglo-Scottish day expresses have been altered and in some cases their running times are reduced. The *Royal Scot* and *Midday Scot* will run with limited accommodation in less time and all seats will be reservable in advance.

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McDonald Engineers (Kirkcaldy) Ltd.,
Loughborough Road, Kirkcaldy, Fife. Tel: Dysart 5231

Stowmarket
O. G. Barnard & Sons Ltd.,
Stowmarket. Suffolk. Tel: Stowmarket 621

Wolverhampton
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146 Newhampton Road West,
Wolverhampton, Staffs.
Tel: Wolverhampton 51293

Newton Abbot
Booker Motor Bodies Ltd.,
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Newton Abbot, Devon.
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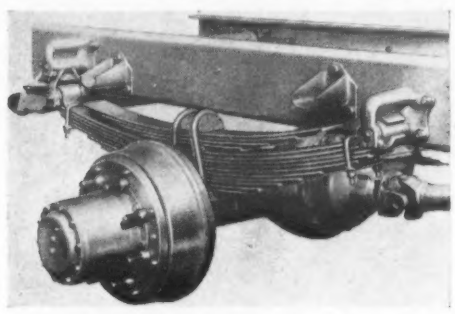
ROAD VEHICLE INDUSTRY

Improved Exide Traction Battery

LIVELIER performance as well as 35 per cent more power in the same space, or a 25 per cent saving in weight for equal capacity, are claims made for a new traction battery developed by Exide Batteries, Limited. The new Exide-Ironclad battery retains the tubular positive-plate construction, which has been one of its leading features for 50 years, and augments this with what is termed "gauntlet" construction. This comprises a multi-tubular gauntlet of resin-impregnated Terylene cloth which fits over the spines of the positive plates, reducing the shedding of active material to negligible proportions. Terylene is said to have unique properties for this application, being resistant to sulphuric acid and oxidation, yet permitting free penetration of electrolyte to the active material, and having high tensile strength and elasticity. Thus it is able to accept the extensive forces developed during each operational cycle of the battery without risk of fatigue or failure. The new Exide-Ironclad traction battery also embodies toughened hard-rubber cell cases, Porvic-sleeved negative plates, positive-plate bases of moulded polythene to which the Terylene tubes are permanently sealed and combined spray arresters and separator guards of moulded polystyrene.

Albion Suspension Developments

IMPROVED suspension for various purposes can now be supplied by Albion Motors, Limited, for the 7-8½ ton gross Claymore and the 10½ ton gross Chieftain. Both ranges can be fitted with either helper springs or anti-roll springs. The



Helper springs fitted to the rear axle of the Albion Chieftain CH3 chassis

helper springs are not intended to provide extra help in carrying the load, but are two-stage springs designed to reduce rolling on a vehicle fitted with a light body with a high centre of gravity when laden. In general, they also provide a more comfortable ride under light-load conditions. These springs can be fitted to the rear axle only and are now standard on the Chieftain tipper, which invariably runs empty or with a high-c.g. load. The anti-roll springs are extra stiff units with a Fox-type clip at the eye ends. They are recommended only when the vehicle has a particularly heavy body with a high centre of gravity, such as a high van body on the Claymore chassis or a double-deck cattle body on a Chieftain. In such cases, the anti-roll springs would be fitted to both axles of the Claymore, and on the rear axle only in the case of the Chieftain.

Mexican Motor Show

OPPORTUNITY exists for exhibiting all types of commercial goods and passenger vehicles at the third International Motor Show to be held at the National Auditorium in Mexico City between January 15 and 25 next. There will also be sections for cranes, agricultural and road machinery, tractors, petrol and diesel engines, accessories, aircraft and boats. Space costs 125 pesos a square metre for commercial vehicles and some space is available free of charge for models and prototype vehicles which the organising committee may ask to be displayed. Applications for space must reach the organisers, Asociacion Mexicana Automovilistica, Av. Chapultepec 276 Mexico 7, D.F., not later than November 10.

Rootes Multi-Fuel Engine

NOW available from Rootes Motors, Limited, Devonshire House, Piccadilly, London, W.1, is a descriptive brochure on the Rootes opposed-piston two-stroke multi-fuel engine referred to in our issue of September 19.

Mercedes-Benz O322 Bus

INTRODUCED at the recent Frankfurt Motor Show (MODERN TRANSPORT, September 25) by Daimler-Benz was a new Mercedes-Benz 100-passenger (32-seat) one-man-operated urban bus designated O322 and coming midway between the established 120-passenger O317 and the 70-passenger (in urban bus form) O321. Features of the new vehicle include wide use of light alloys in a lattice-type self-supporting body-frame-floor structure, a vertical 120-b.h.p. (S.A.E.) diesel engine transversely mounted on a sub-frame at the rear, a power-operated handbrake and air suspension all round. The standard OM321 six-cylinder engine is available optionally in turbocharged form, in which case it develops 135 b.h.p. (S.A.E.) at 3,000 r.p.m. A standard fitting is a thermostatically-controlled radiator fan, which turns only when coolant temperature exceeds 183 deg. F., while an upwards-discharging exhaust system arranged to dilute and cool the exhaust gases before emission to the atmosphere can be supplied optionally. The air suspension is applied to rigid axles, located fore and aft and laterally by tie rods, and employs two double air bellows at the front and four similar units at the rear. Four dampers are fitted at both front and rear axles.

Clayton Dewandre Mot-A-Vac

VACUUM servo brake equipment developed by the Clayton Dewandre Co., Limited, for use on cars and light vans, which was described in MODERN TRANSPORT for September 19, will be marketed under the trade name Mot-A-Vac.

Goodyear Terra-Tyre

RECENTLY demonstrated on Romney Marsh was a new type of barrel-shaped low-pressure tyre introduced by Goodyear Tyre and Rubber Co., Limited. Named Terra-Tyre, the units are of tubeless construction and are clamped on to special wheels. In the demonstration, staged by All Wheel Drive, Limited, a Land-Rover and a 4-by-4 Bedford hauling a Dyson trailer, all equipped with Terra-Tyres are claimed to have operated fully laden with ease over marshland in which unladen vehicles with normal tyres were immediately bogged down.

Turin Motor Show

LAST of the year's international motor shows in Europe is the 41st Italian event to be held in Turin from October 31 to November 11. Visitors this year will see large-scale extensions to the exhibition buildings in course of construction, completion of which is scheduled for 1960. Nearly 500 exhibitors again include a preponderance of United Kingdom car manufacturers, but only three British makes of commercial vehicle—Bedford, Ford and Standard. Meetings of the European Coachbuilders' Union and Transfrigoroute will be held in Turin during the currency of the exhibition.

Small and Parkes Fleet Extended

RECENTLY commissioned in the fleet of vehicles operated by Small and Parkes, Limited, were a Morris Commercial diesel tractor and two 6-ton 18-ft. Scammell dropside semi-trailers. These vehicles make regular scheduled bulk deliveries to most of the company's 29 depots in Great Britain, hauling loads of Don brake and clutch linings. Asbestos friction materials are heavy in weight for small volume and Small and Parkes has found that its products make compact loads for the semi-trailers which are speedy and easy to load and unload. The company also operates two other heavy vehicles and a fleet of 41 light vans (stationed at depots), all of which are finished and lettered in a standard livery of red, black and white. Cars for representatives, and a fleet of test vehicles, bring the total number of road vehicle licences held by the company to 130.

New Type Garage Door

A NEW type of garage door introduced by the Portal Engineering Co., Limited, Cool House, Bancroft Road, Reigate, Surrey, is hinged at the top and opens outwards, thus forming a protective awning over the doorway when opened. A simple counterbalance mechanism and automatic locking in the open position are additional features which might make the unit an attractive proposition for stores and loading bays and even for van bodies. The doors are manufactured in various sizes from ribbed Galvatite (named Galvasheen in the Portal application), a special continuously galvanised steel sheet that is claimed to be corrosion-resistant, which makes painting unnecessary, manufactured by John Summers and Sons, Limited.

One of 30 road-rail vehicles recently acquired by German Federal Railway. Four inbuilt hydraulic jacks permit semi-trailer mounting and disengagement; on the road the trailer bogie is automatically steered by an arrangement embodying three Roballo ball-bearing turntables

Saro Road Tankers

TYPICAL of the work now being undertaken by Saunders-Roe (Anglesey), Limited, in the field of bulk liquid transport is a number of 4,000-gal. road tankers, which incorporates all the features associated with the 2,000-gal. tankers built by the company. The new vehicles can handle a wide range of fuels from aviation spirit to heavy fuel oil. A number has been built recently by the company on behalf of Shell-Mex and B.P., Limited. Welded steel construction was used for the fabrication of the elliptical tank shells, which are Epikote lined to give protection against corrosion. Plates subdivide the tank into six separate compartments of varying capacities, which are arranged for forward draining, and an Emco manhole cover and cam-operated foot valve are fitted to each compartment. The pumping system consists of a Stothert and Pitt pump with a power take-off from the vehicle gearbox. The pump is reversible, enabling the vehicle to be self-loading and a manifold connection makes possible either gravity or pressurised fuel delivery. When not in use the hoses lie on slatted racks along each side and at the end of the vehicle. Walkways, reached by ladders, run the full length of the tank.

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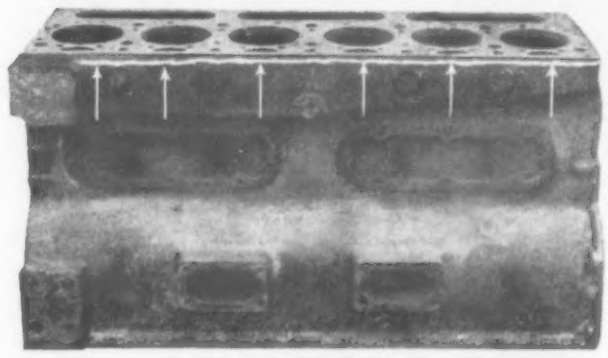
BARIMAR have for many years devoted a special department to the scientific welding of all parts of large and small Diesel engines. Many of these jobs have been sent to Barimar from overseas.



Frost cracked the water jacket of this Diesel engine cylinder block from end to end. Barimar repaired it at low cost within a few days.

The picture illustrates one of many Diesel engine cylinder blocks used in motor vehicles, received by Barimar for repair. Barimar scientifically welds these blocks with strength and accuracy and returns them promptly to their owners covered by the usual Barimar Money-back Guarantee.

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Super-tractor shovel shifting rocky overburden (*Photograph by courtesy of Michigan (Great Britain) Limited*)

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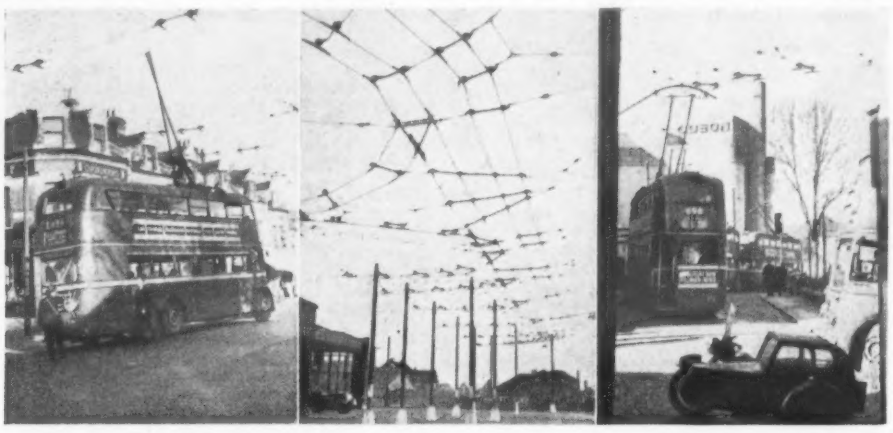
ROAD PASSENGER TRANSPORT EAST OF WOOLWICH

*Passing of the Tramway and Trolleybus Era (Cont.)**

LONG and heated argument developed over the Abbey Wood to Plumstead section, which the L.C.C. was slow to build; several times Erith offered to build it on behalf of London. Erith wanted to build it in 1902, obtained powers to do so in 1903, had them confiscated in 1904, was told in 1905 that the L.C.C. could not build it for the time being, decided in 1906 to work it itself with motor buses, was told in 1907 that the L.C.C. was anxious to build it, but not to operate it, and that it would have to be leased by Erith on terms that were, to Erith, financially impossible, and finally for the 1908 session Erith promoted (but withdrew) another Bill asking for its 1903 powers to be restored and also for running powers into Woolwich. Eventually the L.C.C. constructed the line and opened it on July 26, 1908, but it terminated 80 yards short of the county boundary, and the council refused to join up with Erith rails and permit through agreement for 12 months started on July 26, 1908, whereby Erith cars ran through to the Market at a rental but Bexley maintained the track and supplied the current. Erith found the rent too high, so the service was discontinued 12 months later, but after another 365 days it was resumed, Erith now paying 5d. a car-mile instead of 6½d. Four years later Bexley decided this was not enough, and asked for 6d., which Erith could not afford to pay, so the through service ceased after July 25, 1914. When war broke out the Ministry of Munitions became worried at the inability of factory workers to travel easily between the two towns, and after trying for a year it persuaded Bexley to let Erith work this road for 5½d. a car-mile during the last two months of 1915, after which Erith took over full responsibility from January 3, 1916, and the 5½d. rate remained unchanged to 1933.

The many munitions factories in and around



Minor mishap at Wickham Lane Junction, Plumstead; a study in overhead wires at Bexleyheath depot; right, the 1943-59 terminus of the trolleybus routes at Parsons Hill, Woolwich

running. It is doubtful if the L.C.C. would ever have applied for powers for this route if Erith had not obtained them first. Abbey Wood was not then very built-up, and it was natural that Erith should show a far greater desire to get to Woolwich than that the L.C.C. should desire to go to or towards Erith. Erith always hoped for a through service to Woolwich or even London, and in constructing its track it allowed sufficient clearance on all corners to take the large L.C.C. bogie cars.

The original Erith services worked from North End through to the other two termini, but after only three weeks, on September 18, 1905, they were altered to give one long service from Northumberland Heath through to Abbey Wood, with North End as a short shuttle from the town centre. After a few months North End was restricted to rush hours only, and, later, afternoons only. Two small one-man pay-as-you-enter demi-cars, seating only 20, were then ordered for Erith brought much extra traffic, so in 1915 Erith hired from the London United Tramways, Limited, four eight-wheel open-top 69-seat Milnes trams of 1902, and purchased them in July, 1919. It also purchased in October, 1916, one covered-top eight-wheel car from Hull Corporation. In 1917 Erith carried almost twice as many passengers as in 1913, and it then made a profit for the first time.

The Bexley and Dartford Tramways

The early part of the Bexley story has already been told. After the first few years the council's cars worked from Beresford Square to Bexleyheath Market Place only, the 1.28 miles thence to Northumberland Heath being worked by Erith and the 546 yards from the Market to the Crayford boundary being leased to Dartford. The Bexley depot was on this short section, and had six tracks. Bexley had 16 open-top 52-seat four-wheel cars with Brush trucks and Dick Kerr

The unusually large queue pens and shelters at Beresford Square, Woolwich; the former horse tram depot of Woolwich and South East London Tramways at Lakedale Road, Plumstead; below, a Leyland 70-seat D2 class trolleybus on 698 from Bexleyheath to Woolwich via Erith; and right, an L.T.E. Bedford truck moving a trolleybus stop sign at Erith on the last day of trolleybus operation

it, with Milnes Voss bodies and Raworth regenerative control on Mountain and Gibson trucks. They entered service in January, 1907, and had automatic ticket machines. But the route was only half a mile long, and still did not pay, so from April 1, 1908, onwards, it worked on Fridays and Saturdays only, and ceased altogether some nine months later, save for a three-month revival in the summer of 1910. The two demi-cars were sold in 1916, one to Dartford and one to Doncaster.

A Friendly Quarter

The Bexley U.D.C. tramways were opened on October 1, 1903, and one route terminated at the Erith boundary at Northumberland Heath. Long before the Erith route was ready for opening Bexley agreed, in November, 1904, that Erith could make a junction both with its tracks and its overhead wires, there being a more friendly atmosphere here than at Abbey Wood. In April, 1907, Erith agreed to supply current to the Bexley side in an emergency, and Bexley agreed to run its cars through to the centre of Erith if the Erith current failed. Then Erith asked about a through service, so Bexley offered to lease to Erith its line from the boundary to Bexleyheath Market Place.

Erith declined a lease, but a through-running motors and bodies, the manager and engineer, Chas. Mittelhausen, being also in charge of the municipal electricity department.

The date of July 26 was an important one, for on that same day the Bexley Tramway Act was passed in 1901, the through running at Plumstead started in 1908, and was subject to renewal every seven years thereafter, the Erith through service twice started and twice ceased in various years, and the L.C.C. had powers of compulsory purchase in 1922 and 1929 for the mile of tramway in Wickham Lane, though it did not use them. In the winter of 1914-15 L.C.C. cars of classes B and E/1 often ran up Wickham Lane at rush hours, for the benefit of Woolwich Arsenal employees, until in 1915 Bexley purchased five B-type cars secondhand so as to carry the extra wartime traffic itself. These cars were covered-top four-wheelers dating from 1903, with Dick Kerr bodies and motors on Brill trucks.

The main line of the Dartford tramways was straight along Watling Street, from the Bexley boundary to Dartford centre. Most of it was in Dartford Rural District, and the rest in Dartford Urban District. The original intention was for the Rural and Urban Councils jointly to ask for a Tramways Provisional Order, but the Board of Trade said it could not grant such an Order to any Rural Council. A joint application was there-

(*Continued on page* 18)

* Previous portion appeared March 7.

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Road Passenger Transport East of Woolwich

(Continued from page 17)

fore made for a Light Railway Order, and heard at a public sitting at Dartford on March 7, 1901, the Urban Council also asking for local lines northwards along Hythe Street and southwards towards Wilmington. The total came to 5¼ miles of standard-gauge electric tramway.

Railway Objection

The South Eastern and Chatham Railway objected, since the proposed tramway, with those of Bexley and Woolwich, would be a long trunk route and abstract their traffic, though the objection was over-ruled. The two Dartford councils intended to form a Joint Committee, and the proportion in which the expenses were to be charged was agreed. The whole of the rural council's route was in the parish of Crayford, so it was going to charge all its expenses to the parish council. The Board of Trade would not allow this, so the rural council withdrew and left the urban council to carry out the whole scheme. Despite protests by the urban council the Board then gave Kent County Council powers of compulsory purchase on the Crayford portion, though these were never used. (There were only five cases throughout Britain of a county council owning a tramway.) The Dartford Light Railway Order was eventually granted on February 6, 1902, and all the routes were opened on February 14, 1906.

Meanwhile an Extension Order was applied for in 1901, for 7¾ miles of route running from Dartford centre through Horns Cross and Greenhithe to Swanscombe, from Dartford south-westwards to Bexley Hospital, and from Wilmington through Sutton-at-Hone to Farningham Road railway station. Most of this was rejected, but the 1⅛ miles from Dartford to Horns Cross was sanctioned on November 13, 1903, and also opened on February 14, 1906. The entire 6.55 route-miles were constructed by contract by J. G. White and Co., Limited, of London, which also built the Bexley tramways. The contractor leased for five years the whole of the Dartford system, also the 546-yard Bexley section into Bexleyheath Market Place, and worked a through service between the two town centres.

Balfour Beatty

The interests of J. G. White were taken over early in 1909 by Balfour Beatty and Co., Limited, which was incorporated on January 12, 1909, and which later twice renewed the Dartford lease for a further five years. In 1911 Balfour Beatty obtained a Tramway Order authorising it to bridge the 1.55-mile gap between the Horns Cross terminus and the Swanscombe terminus of the Gravesend tramway system. This was never built, but if it had been there would have been continuous electric tramway connection from Uxbridge in Middlesex beyond Gravesend to Denton. For rolling stock J. G. White had provided 12 four-wheel open-top cars, with 56-seat Dick Kerr bodies and Dick Kerr motors on Brill 21E trucks, but all of these were destroyed, together with the ex-Erith demi-car, in a disastrous fire early in August, 1917, at the depot, which was on the Hythe Street route.

After hurried negotiations, Bexley U.D.C. took over operation of the Dartford tramways from August 7, 1917, until the expiry of the lease on March 31, 1921, and it purchased from the L.C.C. a further 12 B-type cars with which to do so, bringing its own fleet to a maximum of 33. A "Bexley Tramways and Dartford Light Railways" Joint Management Committee was then established, and from April 1, 1921, until June 30, 1933, the two undertakings were worked by Bexley, subject to control of the committee, under an agreement of February 6, 1922, a through service from Horns Cross to Woolwich being soon established. Electricity continued to be supplied from the two municipal power stations, one in each town, and the joint tramways had their own shilling-all-day ticket, independently of that of the L.C.C. In November, 1930, Bexley announced its intention of introducing municipal trolleybuses, but no more came of this. In 1932 it complained that its own section was showing a profit but the Dartford tramways were showing a loss, so in December it gave Dartford notice of its intention to terminate the joint committee arrangements if the threatened London Passenger Transport Board should not materialise.

London Transport

All the Woolwich, Erith, Bexley and Dartford tramways were compulsorily acquired by London Transport on July 1, 1933, and a few months later the junction was at last inserted at Abbey Wood. The through tram service did not materialise, but the Erith cars were transferred to Abbey Wood depot, and the Erith depot was resold back to Erith U.D.C. in March, 1935. All the Bexley cars, also all the Erith cars except the seven original covered-top ones, were soon scrapped, being replaced at Erith by four-wheelers from Croydon and East Ham, and at Bexley by covered-top four-wheelers of class M from the L.C.C. The Hythe Street and Wilmington routes at Dartford were abandoned on April 18, 1934, in favour of L.P.T.B. Country buses, and route numbers 96 and 98 respectively were given to the Horns Cross—Woolwich and Bexleyheath—Abbey Wood routes as from October 3, 1934.

On July 31, 1934, London Transport obtained an Act authorising it to run trolleybuses on 85 miles of tramway route, mostly in north and west Middlesex, but also specifying these three: No. 14, Crystal Palace—Croydon—Sutton; 15, Woolwich (Nile Street) via Welling and Bexleyheath to Dartford High Street; 15A, a loop through Dartford Market Place; and 16, Plumstead—Abbey Wood—Erith—Bexleyheath. Also included was power to acquire a specified plot of land in Erith Road, Bexleyheath, for a new depot. This latter was soon built, and trolleybus routes 698 and 696 replaced tram routes 98 and 96 respectively on November 10 and 24, 1934. The 698 was extended in to Woolwich Free Ferry (i.e. Nile Street) the same as the 696, but the Horns Cross to Dartford Market Place section was not converted, being replaced on the same day by bus routes from Gravesend. The new depot took over both services, and the Bexley tram depot was vacated and sold back to the U.D.C. Today both the Erith and Bexley depots still stand, virtually unchanged, and are both occupied by the highways departments of their two councils. A Sunday afternoon service, 694, ran in 1937-39 from Woolwich to Bexleyheath and Erith. (For a short initial period it used the number 696.) On July 14, 1943, the turning circle was moved west from Free Ferry to Parsons Hill at Woolwich.

Trolleybus Rolling Stock

Bexleyheath depot originally had only 38 60-seat buses, but for its last few years it had 68 70-seaters. The 38 were of B2 type, with Brush bodies on Leyland chassis, Nos. 94-131, but these were transferred late in 1940 to Holloway depot for the Hampstead Heath and Parliament Hill Fields group of routes, and most of them were scrapped in 1953 by a dealer at Stratford-on-Avon after they had been delicensed at Stonebridge depot for a year or so. The 70-seaters sent to Bexley in 1940 were mostly of D2 type (Nos. 384-483) with Leyland bodies on Leyland chassis; they had been used at Hanwell on routes 607 and 655 from November, 1936, to September, 1937, when 70 were transferred to Hammersmith and 30 to West Ham. At the same time Bexley also received about a dozen of the H1 type (755-904) with Metro-Cammell bodies on Leyland chassis, built in 1937 and hitherto used in North London.

Bexleyheath depot was severely damaged by enemy action early in 1941; as a result 12 of its trolleybuses were scrapped and about 27 had to have new bodies. Including other losses elsewhere some 60 trolleybuses were thus rebodied, by Weymann (three A.E.C. and 12 Leyland), East Lancashire (six A.E.C. and 19 Leyland), or Northern Coachbuilders (10 A.E.C. and 10 Leyland), the Weymanns being in 1941-42 and the others in 1945-46. After the air raid Bexleyheath borrowed a mixed collection of trolleybuses from many other depots, but eventually it retrieved most of its own, including the 19 and 10 rebodied Leylands. Of these last 10 two were among the original 38 trolleybuses which, on being rebuilt, received new long-wheelbase chassis as well as new bodies and then became 70-seat vehicles. The final Bexley fleet in 1958-59 was thus two of class B2, 49 D2 and 17 H1, of which two, 18 and nine respectively had new bodies. Details of the motor bus changes which took place on March 4 appeared in our issues of January 24 and 31.

Notek Electric Co., Limited, maker of Blue Spot fog and driving lamps, announces a price reduction in its 125 Micromatic Series from £3 14s. to £3 9s. An incorrodible stainless-steel outer rim is now fitted to 125 Series Notek lamps.

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SOCIAL AND PERSONAL

President of Railway Students

THE Railway Students' Association announces that Mr. H. C. Johnson, general manager, Eastern Region, British Railways, has accepted office as president for the session 1959-60. The opening meeting will take place at the London School of Economics on October 28, when Mr. Johnson will deliver his presidential address.

* * *

Schweppes, Limited, has appointed a road safety officer. He is Mr. A. E. Teer, a former senior instructor at the Metropolitan police motor driving school at Hendon. Mr. Harold Watkinson, the Minister of Transport, has commended Mr. S. Hattan, transport controller of Schweppes, upon this initiative. Mr. Hattan says he is well satisfied with his company's road safety record, covering an expanding fleet of upwards of 1,200 commercial vehicles and cars, but he strongly believes that the subject of road safety is one that calls constantly for fresh thinking.

* * *

Mr. R. Allan was recently appointed chief commercial manager, Rhodesia Railways. He began his career with the South African Railways and joined

Mr. R. Allan

The late Sir Herbert Merrett

the transportation department of the Rhodesian Railways as a clerk in 1929. He was attached to the chief superintendent's office at Bulawayo, the district superintendent's offices at Beira, Salisbury and Livingstone and he worked at most of the larger stations on the system. Mr. Allan joined the general manager's office in 1945. He was appointed assistant superintendent, rates and public relations, in 1950, and when the commercial department was formed in 1954 he was made commercial superintendent. In March, 1956, he was appointed assistant chief commercial manager.

* * *

We record with regret the death of Mr. Arthur Foster, chairman of the Rochdale Canal Company, at the age of 83.

* * *

The North Eastern Region of British Railways announces that Mr. S. J. Judson, at present assistant regional establishment and staff officer, has been appointed regional establishment and staff officer.

* * *

Mr. R. G. Grout, chairman of the General Steam Navigation Co., Limited, will deliver his presidential address to the Institute of Transport at the inaugural meeting of the 1959-60 session, to be held on October 12 at 6.15 p.m. in the Jarvis Hall of the Royal Institute of British Architects, 66 Portland Place, London, W.1.

* * *

Mr. Williams Griffiths, recently appointed district commercial officer, Swansea, Western Region, B.R., joined the former Great Western Railway at Shrewsbury in 1920, and in 1929 was selected for special training in various departments. On completion of this training he served at Paddington headquarters for a period of seven years and was for a time personal clerk to the chief goods manager. He has occupied posts of goods agent at Penzance, Slough and Swansea, and chief clerk at Paddington goods depot. In 1942 he was appointed chief clerk to the district goods manager at Cardiff and was transferred to Swansea two years later. Mr. Griffiths was assistant district commercial manager at Swansea for eight years and in 1954 was appointed district commercial manager at Shrewsbury which post he vacated on his new appointment.

Mr. Williams Griffiths

* * *

Mr. Harry R. Barber, chief engineer of the car body division of the Pressed Steel Co., Limited, since April, 1958, has been appointed a member of the motorcar body divisional board as assistant director of engineering. He joined the company as chief development engineer in 1956.

* * *

Edgar Allen and Co., Limited, announces the retirement of Mr. C. Shaw, manager of the traffic department for 46 years. He organised the company's traffic department after the 1914-18 war, taking charge of the internal transport of the company in 1937.

* * *

The 12th annual reunion luncheon of the Southern Railway Association was held at the Charing Cross Hotel on October 6 with Colonel Sir Eric Gore Browne, last chairman of the Southern Railway, presiding. Sir Philip Warter, chairman of the Southern Area Board, British Transport Commission, and Mr. Charles Hopkins, general manager of the Southern Region of British Railways, were the Association's guests.

* * *

Messrs. David Blee, general manager, London Midland Region, British Railways, and H. Leslie Bowes, managing director, Royal Mail Lines, Limited, and the Pacific Steam Navigation Company, who finished their periods of service as vice-presidents of the Institute of Transport on September 30, have been elected ordinary members of council to fill vacancies caused by the election of Mr. F. C. Asgill as hon. treasurer and Mr. H. H. Crow as a vice-president.

Mr. R. Watts, chief internal auditor, British European Airways, has been appointed manager, Sweden and Finland.

* * *

At the annual general meeting of the British Standards Institution on September 30, Sir Herbert Manzoni, city engineer and surveyor, Birmingham, was re-elected one of the three deputy-presidents.

* * *

The present premises of the Transportation Club will not be available after December 18. Until then the Club is in full service to members for luncheons and parties as heretofore.

* * *

The Minister of Transport has accepted the resignation of Mr. E. W. Burness from the Coastal Shipping Advisory Committee, and has appointed in his place Mr. J. R. Cowper, director and general manager of the Dundee, Perth and London Shipping Co., Limited.

* * *

We record with regret the death of Sir Herbert Merrett, J.P., a former part-time member of the Railway Executive and former chairman of Powell Duffryn, Limited, and of Cory Brothers and Co., Limited. He had also been a director of the Vacuum Oil Co., Limited, and the National Provincial Bank, Limited. Sir Herbert, who was 72, was especially interested in coal exports and was a former president of the British Coal Exporters' Federation.

* * *

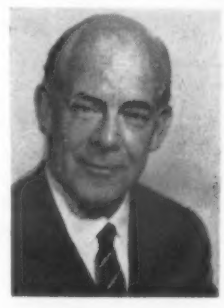
Crypton Equipment, Limited, has appointed Mr. J. Bushnell a director of the company. In recent years, as chief engineer, he has been largely concerned with the design of the present range of equipment, including the Road-Load dynamometer, the cathode ray oscilloscope and the transistorised tachometer to be exhibited at this year's Motor Show.

* * *

The council of the British Institution of Radio Engineers has awarded its senior award, the Clerk Maxwell Premium, to Mr. C. Powell and Mr. D. A. Hendley (Decca Navigator Co., Limited) for the paper "Dectra: A Long Range Radio Navigation Aid" read at an Institution meeting in March last year. The Brabazon Premium, for an outstanding paper on electronic aids to aircraft safety, is awarded for two associated papers by members of the Electrical Engineering Department of Birmingham University—Professor D. G. Tucker, Dr. V. G. Welsby, Mr. R. Kendall and Mr. D. E. N. Davies. The papers are entitled "Electronic Sector Scanning" and "Radar Systems with Electronic Sector Scanning."

* * *

Recently made district traffic superintendent, Gloucester, Western Region, B.R., Mr. J. Powell, M. Inst.T., entered the service of the former Great Western Railway at Cardiff goods station in 1921, and after serving at several stations in the Plymouth and Exeter districts was appointed junior assistant to the London district goods manager in 1935, and as chief clerk in the same office in 1938. In 1943 Mr. Powell was appointed assistant district goods manager, Swansea, but returned to London in 1946 as assistant district goods manager, Paddington. In 1948 he took over the duties of assistant to the chief commercial manager, Paddington, where he was responsible for Parliamentary and new works, private sidings and accounts matters. He was appointed district goods manager, Paddington, in 1951.



Mr. J. Powell

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Mr. A. A. A. Cardani, B.Sc., A.M.I.E.E., M.I.R.S.E., assistant signal engineer, Western Region, British Railways, has been appointed signal engineer of that Region.

* * *

The chief executive officer of the Road Haulage Association, Mr. R. Morton Mitchell, whose health has not been good during the summer, was this week to enter Brompton Hospital for observation and rest.

* * *

The Minister of Transport has appointed Mr. B. T. Pratt, a nominee of the British Transport Commission, to be a member of the North Eastern Area Transport Users' Consultative Committee in place of Mr. A. T. Evans who has retired from the service of the Commission. Mr Pratt is general manager of United Automobile Services, Limited.

* * *

Mr. F. J. Buswell, A.M.I.Mech.E., retired as development engineer, Bristol Commercial Vehicles, Limited, on September 30 after 45 years in road vehicle engineering. He joined the Birmingham and Midland Motor Omnibus Co., Limited, in 1915 as an assistant engineer and he joined the then Bristol Tramways and Carriage Co., Limited, in 1938 as chief designer. He initiated the design of the prototype XOW diesel engine, forerunner of the production AVW type, and is responsible for the design of the Lodekka bus, lightweight single-deckers, the goods vehicles produced for British Road Services and the Bristol-E.C.W. railbus. He had been development engineer since 1955.

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IMPORTANT CONTRACTS

Hundredth Airfield Radar

THE 100th order for a radar of the Decca 424 series has been placed by Marshalls (Cambridge), Limited. Adopted as standard equipment by the Royal Air Force and also in service with some 15 overseas air forces and aviation authorities, the Decca 424 is fitted extensively in the United Kingdom for aircraft manufacturers, subcontractors and independent airline operators. The Ministry of Transport and Civil Aviation, Rolls-Royce, Limited, Bristol Aeroplane Co., Limited, Vickers-Armstrongs (Aircraft), Limited, Handley Page, Limited, and Silver City Airways are amongst the many who are using this British landing and control radar for a wide variety of flying. The list of installations also includes many at specialised and experimental airfields such as Farnborough, Boscombe Down, Martlesham Heath and Thurleigh, Bedford. Marshalls is fitting the 424 in order to achieve more flexible air traffic control procedures at its busy Cambridge aerodrome.

Large A.E.C. Order from Belgium

A.E.C., Limited, announces that its Belgian distributor, Etablissements G. Spitals S.A., has recently placed a further order for 32 goods and passenger vehicles, bringing A.E.C.'s total turnover in Belgium to a record figure of over £450,000 this year.

Toronto Subway Contracts Placed

Sir Robert McAlpine has been awarded a contract for tunnel digging for the Toronto University Avenue subway from Osgoode Hall to the north end of Queens Park by the Toronto Transit Commission. The stretch from Queens Park to St. George Station will be undertaken by McNamara Construction and Raymond International, while Canada Iron Foundries will provide the tunnel shield to be used in the diggings.

Scottish Region Contracts

The following contracts have been placed by the Scottish Region of British Railways:

Murdoch Mackenzie, Limited, Motherwell, for reconstruction of bridge over Glasgow—Greenock trunk road, Bishopton.

The Motherwell Bridge and Engineering Co., Limited, Motherwell, for three 30,000-gal. diesel oil storage tanks, Aberdeen and Inverness.

Sir William Arrol and Co., Limited, Glasgow, for alterations and addition to superstructure, Clyde Bridge, Glasgow Central.

Standard Telephones and Cables, Limited, London, for cabling telecommunications and electric traction supervisory circuits south of River Clyde.

Pirelli General Cable Works, Limited, Southampton, for concrete troughing and track feeder cables and connections for Glasgow suburban electrification.

Wilson, Kinmond and Marr, Limited, Glasgow, for culverting part of Monkland Canal and demolition and removal of bridge between Easterhouse and Blairhill.

Three-in-One Albions Ordered

The North Thames Gas Board has placed an order for 12 special multi-purpose vehicles with Albion Motors, Ltd. The Board has already considerable experience with alternative tipper or platform bodies for each chassis and now proposes to go one stage further by ordering chassis on to which any one of three alternative bodies can be mounted, namely platform, tipper or box. The platform bodies are for sack coke deliveries and the tipper bodies for bulk coke deliveries during the peak season of coke supply. During the off-peak season for coke, which normally is the period of heavy demand for appliances of the bulkier type, such as refrigerators, washing machines and laundry appliances, the box bodies will be used. These vehicles, based on Albion Chieftain 7-ton chassis, are specially designed; convertibility is made possible by using flitch plates on the outsides of the frame members and fitting an easily detachable frame extension piece for use with a platform body. Redhill Bodybuilding Industries, Limited, will supply the platform and box bodies, while the tipping bodies and Anthony Hoist tipping gear will be provided by the Steadman Engineering Co., Limited.

Eastern Region Contracts

The Eastern Region of British Railways announces the following contracts:

W. and C. French, Limited, Buckhurst Hill, for demolition and reconstruction work at Enfield Town Station.

Carter-Horseley (Engineers), Limited, Sheffield, 4, for alterations to overhead bracing of Keadby Lift Bridge carrying roadway over River Trent.

Wellerman Bros., Limited, Sheffield, 3, for reconstruction and widening of bridges between Chelmsford and Witham.

South Wales Switchgear, Limited, Blackwood, for erection of equipment for 6.25-kV feeder stations and track sectioning cabins for 50-cycle a.c. electrification and other works in connection with electrification schemes.

Fuller Electric, Limited, London, E.17, for erection of equipment for 25-kV feeder stations and track sectioning cabins for 50-cycle a.c. electrification and other works.

Matisa Equipment, Limited, Chertsey, for one Matisa track-recording trolley and associated equipment.

Swissair Orders Convair Coronado

Swissair has changed its order for five Convair 880 to seven Convair 600 Coronado jet air liners, scheduled for delivery in the spring of 1961. Under the agreement with Scandinavian Airlines System, Swissair will lease two Coronados to S.A.S. for four years. The Coronado, which is an improved version of the 880, will be equipped with four turbofan engines, giving a cruising speed at 30,000 ft. of 635 m.p.h. It will have a non-stop range of nearly 4,000 miles and in mixed configuration will seat 28 passengers in first or de luxe class and 59 in tourist class, in a maximum take-off weight of 239,300 lb.

Puffer Turns Diesel

Since its traditional steam machinery was replaced by a diesel power plant, one of the small Scottish ships known as "puffers" has shown a considerable reduction in operating costs, and the smaller dimensions of the new machinery has enabled the cargo hold to be extended. Named *Lascar*, the ship is one of a large fleet owned by J. and J. Hay, Limited. It has been fitted with an Ajax Argosy marine propulsion unit based on a Leyland-Albion EN900 industrial diesel engine driving through an oil-operated reverse-reduction gear produced by Self-Changing Gears, Limited (an associate company of Leyland Motors), and a 54-in. propeller, giving the *Lascar* a speed of 7½ knots fully laden to a deadweight of 180 tons. The "puffers" are used on the River Clyde to carry a variety of cargoes between Glasgow, Clyde outports and the Western Isles.

SHIPPING AND SHIPBUILDING

Port of Manchester Sales Team

LOOKING towards further expansion of trade and in the belief that it has much to offer importers and exporters in the Midlands, the Manchester Ship Canal Company has sent a team of eight specially selected men who have set up headquarters in the Grand Hotel, Birmingham, and will be calling on many hundreds of firms during this month. It is thought that no other port in the country has organised before a drive for traffic on this scale, supported by Press advertising in the dailies, evenings and shipping newspapers. Believing in the value of personal contact the Port of Manchester feels much will be learnt from this drive and it hopes that importers and exporters in the West Midlands area will in many cases find that the port can help them reduce their transport costs.

German Nuclear Tanker

WEST Germany is to have a tanker powered with a nuclear reactor, it is claimed by a spokesman for a private shipping corporation. He said that research and preparation for the scheme had been going on for a year, and that enough progress had been made to allow the installation of an atomic reactor in a tanker, adding that the firm was already looking for a ship in which to house the reactor.

St. Lawrence Seaway Traffic

WHEN in the next few weeks the new St. Lawrence Seaway will close down for the winter season, it will have registered a total of actual cargo business even higher than predicted by its leading backers. Thus far, seaway officials report that 11 million tons of freight have passed in or out of the seaway locks, marking a gain of 59 per cent over 1958. Another 16 million tons has gone through the Welland Canal, a rise of 23 per cent. These impressive totals have been attained despite the steel strike which cut iron ore shipments in August to their lowest level since the depression year of 1932.

Contribution to Invisible Exports

AN inquiry undertaken by the General Council of British Shipping at the request of the Government shows that the contribution of United Kingdom shipping to the balance of trade for 1958 was £135 million. This compares with the figure of £221 million for 1952, when the previous similar inquiry was made. The year 1952 was, of course, relatively good for shipping but 1958 was a year of depression in the industry. When comparing the above figures with the shipping receipts and expenditure given each half year in the Government White Paper on the balance of payments it should be borne in mind, first, that the Government shipping figures relate to passenger and dry cargo ships only while the General Council includes tankers. Second, the White Paper figures, in addition to the net foreign earnings of ships owned or chartered by United Kingdom shipowners, take into account, as credits, the disbursements incurred by foreign ships in U.K. ports and include among the debits the freights paid to foreign vessels which bring imports to this country and passenger fares paid by U.K. residents travelling in foreign ships. Third, there are certain differences between the basis on which the shipping industry was asked to conduct its inquiry and the calculation of the White Paper figures.

For Livestock and Containers

ON October 1, the Ailsa Shipbuilding Co., Limited, launched from its yard at Troon the twin-screw cattle and container carrying vessel m.v. *Slieve Donard*, for the Irish shipping services of the British Transport Commission. The vessel has been especially designed for the carriage of livestock, containers, cars and general cargo between Heysham and Belfast, and Holyhead and Dublin. The spaces for cattle and horses meet the highest standard required by the Ministry of Agriculture and Fisheries, special attention having been given to the carriage of valuable blood stock and racehorses. Unlike the existing *Slieve* vessels serving these ports, the vessel is of the shelter deck type giving complete cover for cattle and containers on the main deck. The design and size of the hatches has been arranged to assist in speedy turnround, Macgregor steel covers being arranged on the shelter deck. Containers will be handled by dockside cranes and cattle loaded and discharged through specially designed ship side entrances. Provision is made for the carriage of palletised cargo and wheeled vehicles on the main deck, loaded through gate type watertight doors in the stern of the vessel. A total of 25 large type railway containers, 685 cattle and 14 horses can be carried or 43 large type railway containers, 511 cattle and 14 horses. A total deadweight of 950 tons will be carried on a loaded draft of 13 ft. at a speed of 14 knots.

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TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

October 21—Vietnam.—International Co-operation Administration for six petrol-engined LORRIES for 19,000-lb. g.v.w. and with min. wheelbase of 120 in. Tenders to the Central Purchasing Authority, P.O. Box H-5, Saigon. (ESB/22317/59/ICA.)

October 21—Ceylon.—International Co-operation Administration for five hydraulic FRONT-END LOADERS on wheeled tractors (tender No. DLF-25) and three TRACKED TRACTORS (DLF-22). Tender documents from the offices of the High Commissioner for Ceylon, 13 Hyde Park Gardens, London, W.2, quoting appropriate tender number.

October 21—Portuguese East Africa.—Ports, Railways and Transport Department for railway TRAVELLING CRANE. Drawings and specifications from the Railway Warehouse, Lourenço Marques, through local agent. (ESB/16818/59.)

October 21—Union of South Africa.—Union Tender Board for two 34-d.h.p. (10-hr.) diesel wheeled TRACTORS. Tenders to the Secretary, Union Tender Board, 291 Bosman Street, P.O. Box 371, Pretoria. (ESB/23080/59.)

October 24—Formosa.—International Co-operation Administration for 14,300 metric tons of 75 lb./yd. RAILS in 15-metre length and 2,300 metric tons of 40 lb./yd. RAILS in 10 metre length. Tenders to the Central Trust of China Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan. (ESB/23241/59/ICA.)

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